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General Aspects of Instruction: Learning, Teaching, and the Curriculum

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TABLE OF CONTENTS

Chapter *Page*

Foreword 258

I. The Curriculum: A General View 259
WILLIAM L. CONNOR, *Allentown Public Schools, Allentown, Pennsylvania;* and RAYMOND WHITE, *Lehigh University, Bethlehem, Pennsylvania*

II. Organization of the Curriculum 274
FRANK A. BUTLER, *Pennsylvania State College, State College, Pennsylvania*

III. Activity Education 280
KATHARINE B. GREENE, *Sherwood School, Bloomfield Hills, Michigan*

IV. Philosophy of Education 289
FREDERICK S. BREED, *University of Chicago, Chicago, Illinois*

V. Methods of Teaching 299
STEPHEN M. COREY, *University of Chicago, Chicago, Illinois;* and VIRGINIA MOOK, *University of Chicago, Chicago, Illinois*

VI. Radio and Records in Education 305
SEERLEY REID, *The Evaluation of School Broadcasts, Ohio State University, Columbus, Ohio;* and DANIEL DAY, *The Evaluation of School Broadcasts, Ohio State University, Columbus, Ohio*

VII. The Library in Education 323
HELEN L. BUTLER, *formerly Librarian, Lindblom High School, Chicago, Illinois*

Chapter *Page*

VIII. Visual Aids in Education 336

JAMES S. KINDER, *Pennsylvania College for Women, Pittsburgh, Pennsylvania*

IX. Educational Psychology 345

WILLIAM CLARK TROW, *University of Michigan, Ann Arbor, Michigan*

Index 357

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FOREWORD

THIS ISSUE OF THE REVIEW represents one of the new areas planned by the Editorial Board in February 1938 and February 1939 when the list of topics for the fourth cycle was reorganized. The issue was designed to cover aspects of education, particularly of instruction, which are general, as contrasted to particular levels, subject fields, or specialized interests. In this sense it has no predecessor, though two of the areas which formerly comprised the issue on "Psychology of Learning, General Methods of Teaching, and Supervision" (June 1939, June 1936, and October 1933) are included. The third area of those earlier issues, namely, "Supervision," has now been transferred to the issue on "Teacher Personnel" (June 1940).

A number of new topics have been included in the present issue. Topics which are presented for the first time as chapters are "Philosophy of Education," "Radio and Other Auditory Aids," "Visual Aids," and the "Library." These topics have had scattered and somewhat fragmentary attention in earlier issues, and such treatments will be found by consulting the indexes in the REVIEW.

In accordance with plan, the treatment herein accorded the curriculum and curriculum-making is restricted to general aspects. Work on the curriculum in individual subject fields is presumed to be treated in the several issues of the REVIEW which are devoted to these subject fields.

Other issues of the REVIEW which may be regarded as supplementary to the present issue in treating rather general aspects of education are "Organization and Administration of Education" (October 1940) and "Methods of Research and Appraisal in Education" (December 1939 and December 1942).

DOUGLAS E. SCATES
Chairman of the Editorial Board

CHAPTER I

The Curriculum: A General View

WILLIAM L. CONNOR and RAYMOND WHITE

Historical Perspective on the Curriculum

THIS CHAPTER is devoted to a brief summary of some of the chief phases of research and creative thinking in the general field of curriculum-planning and construction. The more important published studies since 1936 are reported in some detail. Less important studies are summed up in a sentence and others appear in the bibliography without comment. It may be well to review sketchily the curriculum-revision movement—how we came by the curriculum we have, why we are trying to change it, and how we are going about it.

Nearly 2,500 years ago there lived and worked in the city of Athens two overlapping yet opposing groups of philosophers. Chief among them were Socrates and Plato, on the one hand, and Aristotle on the other. Whatever else we may say of the work of the first two men, this, we think, would be generally accepted: Socrates and Plato struggled with the idea of making a choice of what was to be taught to young people in order that they might enjoy the good life and develop the ideal State. On the other hand, Aristotle set up a research organization—the first great educational research organization in the world's history and perhaps the largest that has ever existed in the world—to discover everything to be known about literally everything, to organize it, and finally to write it into textbooks, so that others might, by studying these texts, acquire universal knowledge. For a number of reasons, some too lengthy and others too obscure to report here, the Aristotelian philosophy prevailed; and from his time to our own, education has largely been a process of discovering facts and truth, or what passes for facts and truth, and the organization of this material into textbooks for study in the schools. As scientific and historical research, philosophical thinking, and creative writing have increased in the world, the bulk of the world's knowledge has grown until the textbook has tended to become a compendium of knowledge in its given field, briefly and abstractly stated, and impossible of comprehension except by scholars highly trained in each field.

About the turn of the century there was a revival of the study of Socrates and Plato and the beginning of new philosophies based, in part, upon them and their thinking and, in part, upon the facts of the social situation as they present themselves in the modern world. Perhaps the most prominent philosophy that arose out of this ferment was the philosophy of pragmatism: *That which works is true;* and, in psychology, atomistic behaviorism: *Human learning is simply the conditioning and progressive reconditioning*

of one reflex after another, in detail, until a behavior pattern is formed for the adult. The revival of the ancient philosophy of Socrates and Plato and the development of pragmatism and behaviorism resulted in a few new textbooks and courses of study presenting elements of choice in terms of personal and social usefulness and detailed analyses of subjectmatter arranged for step-by-step learning of those details which were supposed to be true because they were observed to be useful.

A little more than a decade ago, four new elements were injected into the picture: (a) Philosophers who believed in absolute truth reasserted themselves as realists and began to compete with the pragmatists for control of curriculum-planning. (b) Psychologists began to discover that the physiological basis of behaviorism was untenable—*that the central nervous system acts dynamically as a whole*—and they proceeded to demonstrate experimentally a dynamic theory of learning, characterized by the presentation of interesting or "dynamic" material stimulating immediate, almost automatic, organization of ideas into thought and action, and leading to emotional drives sufficient to bring about the mastery of less interesting or actually inert material. (c) City and state school systems, as well as experimental schools, began to set up organizations to revise the curriculum or to plan wholly new curriculums. (d) Textbook writers began to write new textbooks to carry out the proposals set up in such new curriculums. Needless to say, city and state organizations have been variously led and have adopted strange combinations of all known philosophies and psychologies to guide their work.

Current Criteria for Selection of Subjectmatter

Out of this welter there are beginning to emerge a few principles, partly philosophical and partly psychological, on the basis of which curriculum materials can be chosen: (a) *Social.* Those facts and principles should be chosen for teaching which are most likely to enable the learner to master his environment, or to adjust to it, in the interests of the good life for him and for society. Some persons forget subjectmatter in their enthusiasm for the belief that social goals are to be achieved almost wholly through democratic living in the school. (b) *Psychology of Learning.* Of any two or more facts equally useful, that one should be chosen for the approach to learning which is inherently most interesting or, when properly presented, most "dynamic," that is, most likely to lead to a prompt, almost automatic, organization of ideas into thought and action and an emotional drive to attack less dynamic or even inert related materials. (c) *Testing.* Standards of performance and tests for measuring them are being revised in terms of what pupils of known intelligence can achieve when given better curriculum materials and better teaching. Evaluation of growth along desirable lines by systematic observation is supplementing testing—in some cases, replacing it. Attempts have been made to test "whole growth" resulting from "whole activities"—knowledge,

skills, intangibles, and so forth. The new "eight-year" or Aikin experiment tests are examples. (d) *Functional Activities.* Functional activities are treated not as disciplines but as life problems here and now and are useful in training for today and tomorrow. Community resources are much utilized. The ability to think is judged to be the best preparation for life. Facts and skills take relative places in the picture, with ability to think being primary.

One may, however, examine the whole body of published literature on the curriculum and on curriculum-planning without discovering much positive evidence of the clear emergence of these ideas. In fact, the reverse philosophy and practice, or contradictory philosophies and practices, still hold in most quarters. This means that little objective research has been done—primarily, because there is no dominant guiding philosophy. This chapter on the review of research and creative thinking is presented, therefore, as a brief description of a rather confused transitional period from which it is hoped that clearer philosophies and better practices may, in the next decade, emerge.

Recent Philosophical and Analytical Treatises

Dewey (39) clarified his philosophy by explaining the meaning of experience, freedom, activities, discipline, control, and the place of subject-matter in a positive philosophy of education. Contrast and comparison of progressive and traditional practices serve to bring out vividly his philosophy of experience—continuous and interactive—as both the means and end of education. The book is no defense of progressive education but, as a restatement of a fundamental point of view, it may serve to save those who are attempting to work out a forward looking program from some of the pitfalls of the ultraprogressives.

Bode (14) pointed out the inadequacy of the concept of democracy as being that political organization which permits an individual the greatest freedom. Democracy, according to Bode, is a way of living by the group for the good of the group. The section which states the implications of education for democracy as a way of life also presents a point of view for the curriculum worker.

> The school must undertake to exemplify in its organization and procedures, its conception of democratic living.
>
> The primary obligation of a democratic community to its members is to provide for each the opportunity to share in the common life according to interest and capacity. (14:77)

The materials taken from the surrounding environment and the procedures in the school

> . . . are designed with reference both to the discovery and exploitation of individual capacity and to a continuous deepening sense of membership in the social order. (14:83)

> It [the school] must not merely practice democracy but must develop the doctrine so as to make it serviceable as an intellectual basis for the organization of life. (14:94)

Morrison (91) defined the general curriculum as the curriculum of the common schools and estimated the time required to cover it. To Morrison, the curriculum is the sum total of all the common activities of all the people, and all these activities should, sooner or later, find themselves in the schools, regardless of whether that is possible at the present time. Morrison analyzed the common activities which should be in the school. This analysis is presented in terms of subjects to be taught and is distinctly Aristotelian in its outlook, although modern subjects and new phases of all subjects are presented.

Bobbitt (13) made a fresh attempt to analyze society, and the good life in society, as the basis for the curriculum. He carried forward his own and the presentday rebellion against the mediocrity of education conducted through subjectmatter as determined largely by Aristotle, and, since his day, fixed upon the schools.

Beard (96), in the first pronouncement of the Educational Policies Commission, called for educational leadership to reconsider the obligations of education to our democracy. The Founding Fathers considered education the heart of democracy but were prevented by the exigencies of the time from making it so. During the period of Jacksonian democracy, education developed with the growth of the states into state systems with an emphasis on the development of the individual. It has largely followed this pattern until the present time. Let education, says Beard, assume its unique function of preparing youth to live in a democracy.

Hopkins (63) believes the good life is achieved by living it. The curriculum thus becomes those experiences necessary to live the good life in the school. They are to be selected cooperatively by teacher, parent, child, and all others capable of entering into the picture. The individual assumes responsibility for group activity and willingly takes his part in it. Learning, class and school administration, organization of curriculum experiences, and measuring of outcomes are discussed in the light of this basic philosophy of education.

In *Progressive Education at the Crossroads*, Bode (15) stated: "The progressive school cultivates an atmosphere of activity and freedom all its own . . . is a place where children go, not primarily to learn, but to carry on a way of life." (15: 9) Bode identified progressive education with the rise of the common man. He warned that it must cease to be absorbed with the development of the individual pupil and must be guided by a social ideal—the democratic way of life.

> Profitable growth in our day is growth toward a plan for living intelligently in a topsy-turvy world and such growth must have reference to the issue of democracy, which in one form or another, is cropping up everywhere and which is, by all odds, the most important issue confronting us at the present time. (15:85)

He does not wish to depart from teaching the child as a person, but, as he sees it, teaching today lacks social direction and this "participation

in a common life is an essential condition for enrichment of experience." Group planning, socialization, projects, and similar innovations point to this essential ideal of a democratic way of living.

> Progressive education has a unique opportunity to become an avowed exponent of a democratic philosophy of life, which is the last remaining hope that the common man will eventually come to his own. (15:122)

The first part of the book by Hopkins and the Committee on Integration of the Society for Curriculum Study (62) gives the evidence for integration in its biological, philosophical, psychological, and psychiatrical aspects, each by a specialist in his respective field. In the light of the principle of the integration of behavior, various types of curriculum organization and practices are evaluated. The traditional subject type of curriculum has least integration; then follow in order the correlated, broad-fields, core, and experience curriculums. While the experience curriculum offers greatest opportunity for integration of experience, and there is a trend in this direction, the author seems disturbed about guidance, because it is, in his opinion, synonymous with education; also he appears to have questions about the practical aspects of administering the experience program.

Lee and Lee (81) wrote to help the elementary teacher develop a curriculum better suited to his children. Proper guidance of child learning requires an understanding of the child as a purposing, growing individual with a personality all his own. The first section of the book discusses the child. The second part of the book gives suggestions for curriculum change in the various areas of experience—social, number, scientific, health, and creative. These suggestions serve as guides to the teacher and at all times give the impression that he is the "director of curriculum" in his own classroom.

Mossman (92) presented a brief account of the history of the "activities" point of view in curriculum development, together with an interpretation of it. She showed that this point of view has been steadily gaining in educational thought and practice since the time of the Renaissance, continuing up to the present day. It is not a fad but a steady growth which has probably not yet reached its peak of maturity.

Rugg and others (113) reported that their survey of the social, economic, and political background of presentday America shows great changes in American democracy. The authors drew up a balance sheet of assets and liabilities to indicate the promise of democracy in America. Democracy and education are interwoven—each dependent on the other. The position of youth in a "depressed" society is not favorable to desired growth. The school has lagged in making adjustments to offer satisfactory educational opportunities. The last two sections are particularly important for curriculum reorganization. The first of these is a discussion of the growth process and the relationship of the growth of the individual to the culture of the race. In the second, the authors discuss "promising efforts" for curriculum reform and indicate directions for progress in the years just ahead.

Rugg (112) described how mass education grew in the Machine Age when frontiers were being rapidly expanded. In the period that followed, education lagged behind progress in other phases of our national life. Thus education, which was designed to perpetuate and give impetus to our national life, was failing in its mission. Rugg does not favor what he calls "administrative tinkering" but a thoroughgoing readjustment of the school's program. In his school, activity holds a prominent place. The illustrations of the new program in health, social studies, and art are indicative.

Schoenchen (120) reported that the activity school is "the result of a slow growth of pedagogical doctrine and practice to which the most diverse types of educational movements have contributed." The author sees the method of the activity school as "heuristic," to which he seems to give the general meaning of helping the child find out for himself as far as possible rather than being told. Pupil activity is formally and systematically applied to teaching procedures. The rather lengthy criticism of Dewey's concept of the activity school seems to be a matter of fine distinctions rather than real differences. The writer relies more on prescription and less on freedom than most progressive educators would favor—"the teacher so manipulates the learning situation that the pupils will choose the activities which the teacher has pre-selected for them to choose."

In *The Changing Curriculum,* Harap and others (97) presented an attempt to get a "glimpse of the distant scene" of curriculum reorganization and to appraise progress on certain programs of curriculum planning in action. The first part of the book is a discussion of the current status of curriculum thinking as regards its basis in the good life and its organization in functional units of experience. The analysis of certain state, county, and city programs of reorganization includes a description of each program with some criticism in the light of the concepts developed in the first chapters of the book. The committee presents a dynamic approach to the problem. There is unity in the basic principles underlying curriculum reorganization, according to these authors, and these principles are well illustrated in the examples of programs in action. At no time is it intimated that we "have arrived," but the challenge to teachers to work on the curriculum is clearly pointed out.

Washburne (136) described the philosophy and practice of education as it is carried out in the Winnetka schools. Throughout the book there is an attempt to justify the Winnetka program. One who has followed the plan in Winnetka for many years can see changes—changes which bring about somewhat more freedom. However, essentially the plan has been, and is, one of prescribed minimum essentials with considerable freedom in some broadening activities. The "essentials" consist of knowledges, skills, or conventions which the child *will* use—not *may* use. The sections of the book which discuss the recognition of the child as a person are valuable for curriculum reorganization. The democratic viewpoint in school administration is well stated and sound. In such a democratic setting curriculum reconstruction could have freedom.

Everett (43) described nine community school programs. Four of these are in urban centers and five are in rural communities. These centers vary in many respects but in each case the community school is the center and an integral part of the community life. The philosophy underlying the program, the organization, activities, and evaluation are given for each program by a person intimately connected with the plan. These programs give many avenues for making the school a community project through combined school-community planning of curriculum, organization, and administration.

Horrall and his co-authors (64) are workers in Lincoln School in San Jose, California. They have made changes in an elementary school to bring about a more vital program. Their experiment is more important because their pupils are not favored either in ability or in social or financial background of parents. They were somewhat below the "garden variety" level. The building was an old one. Teachers were average, except for an interest in doing something about their mediocre program. These facts make the results of experiment more applicable to most schools. Many progressive experiments have been in schools highly favored in teachers, quality of student, materials, and building. The evaluation of the experiment seems sound. Achievement showed more than normal growth as measured by standardized tests. Other evidences, as fondness for the school, creativeness, health habits, secondary-school success, and citizenship abilities, showed excellent progress on the part of the pupils. The book contains complete descriptions of units of work as they were developed in the school.

Spears's book (125) is valuable as a clear presentation of the directions in which curriculum revision seems to be going. After challenging teachers to do something about curriculum development, six types of curriculum plans of organization are clearly described. Overlapping among the types is recognized, but the classification serves as a frame of reference for the discussion of the type programs which follow. The discussion of actual programs in action constitutes the larger part of the book and seeks "to reveal the specific steps certain schools are taking to arrive at the goals promised by the spirit of the movement" (125: 72).

Research on the Curriculum

The studies reported up to this point are philosophical—creative or interpretative thinking—or they are descriptive. Three objective studies are now to be reviewed.

In the *Story of the Eight-Year Study*, Aikin (1) reported the results of the Eight-Year Study under the auspices of the Commission of the Progressive Education Association. The Commission had two purposes in mind in making this study: (a) to establish a relationship between school and college that would permit and encourage reconstruction in the second-

ary school; and (b) to find, through exploration and experimentation, how the high school in the United States can serve more effectively.

The findings of the study show that the graduates of the thirty schools were not handicapped in their college work, that departures from traditional patterns of prescribed subjects did not lessen the student's readiness for college work, and that the students from the schools which made the most change in the curriculum made the best showing in college. The evaluation was scientifically carried out. It involved careful matching of 1,475 pairs of students and following them through the four years of college work. The "cards were not stacked" in favor of the experimental group. The data which describe the graduates of the thirty schools as contrasted with the graduates of traditional school have much meaning for the curriculum worker.

Two implications come from this study: (a) *Traditional patterns of prescribed courses are not essential.* "The customary relations of school and college are unsound in that emphasis is placed upon out-worn symbols—units, grades, rankings, and diplomas. . . . The conclusion must be drawn, therefore, that the assumptions upon which school and college relations have been based in the past must be abandoned" (1: 118-19). (b) *Secondary schools can be trusted with greater freedom in matters of curriculum than colleges now permit.* "If some in the colleges feared that the Thirty Schools would use their freedom recklessly, they now know that their fears were without foundation" (1: 124).

The counsel given by the thirty schools reflects current thinking on the organization and content of the curriculum. The approach to the whole problem is vital and realistic. To illustrate: "It is only when these paraphernalia (school buildings, classes, textbooks, courses, and credits) of education can be pushed into the background of one's mind that realistic thinking becomes possible. Only then is the teacher able to see the student as a young human being growing up in a very complex and difficult world. And only then can the teacher begin to see clearly and constructively what the school should be and do" (1: 130).

In 1935 Wrightstone published a monograph entitled *Appraisal of Newer Practices in Selected Public Schools.* It attempted to appraise outcomes in certain newer and older types of school programs by "more accurate and reliable measurements than have appeared in articles and addresses by earnest proponents of either newer or older practices." Wrightstone's present study (144) supplements the older one by extending the number of objectives studied by more inclusive descriptions of the practices. Origins and development of experimental programs of education, from the latter part of the eighteenth century to the present time, are described. Instruments for appraising the experimental programs are explained. Six communities in metropolitan areas cooperated in the study—communities representing both the newer and traditional practices. Pupils in the communities were equated by the "matched pairs" technic. Teaching groups

were comparable as to such items as salary, experience, training, and pupil load. Data were secured to see how well each type of school is achieving the objectives of elementary education. The results indicate that, if the objectives selected are valid, "the practices in the experimental schools are more conducive to more comprehensive growth than practices in conventional schools" (144: 220). There was a marked growth in the experimental schools in many of the "intangible" abilities, including desirable social relationships, appreciation of worthwhile activities, aptitudes, and critical thinking. In command of common knowledge and skills, the difference favored the experimental schools, though the difference was not statistically significant.

Saylor (117) analyzed the factors associated with participation in modern programs of curriculum development, using as the basis for his study the state of Virginia, where a statewide program of curriculum development, introduction, and use has been in operation progressively since July 1, 1931. His most important conclusion is: "Two factors emerge from all the evidence of the study as being basic to extensive participation by local school systems in a state cooperative curriculum program of the type organized and developed in Virginia—leadership and, relatively speaking, high economic ability to finance schools" (117: 233).

Perhaps the felt need in communities of relatively high economic ability is usually such as to make them reach for higher teaching ability and more dynamic leadership than communities of relatively lower economic ability can envision. A number of studies deserve brief mention because of their bearing on curriculum problems. Rainey and others (106) in *How Fare American Youth?* reported on the problems which youth face today. Bell (10) reported on the economic and social conditions and the attitudes of some thirteen thousand youth in Maryland. Taken together, these two studies are the proper source material for important changes in the curriculum. Dale (36) reviewed various studies of children's questions and pointed out the significance of such questions for the development of curriculum material. Carr (94) reported excellent examples of school practice in education for democracy. Hollingworth (60) presented an enriched curriculum for rapid learners; Connor (31) summed up the story of the education of gifted children, with emphasis on the plan in operation in Allentown, Pennsylvania. Featherstone (44) described the newer type of activities applied to slow learners.

Charters (26) showed how areas of experience are replacing subjects in the reorganization of the curriculum; Caswell (24) emphasized the importance of stressing contemporary problems to be solved cooperatively; and Brooker (16) called attention to the motion picture and the radio as potential educational tools. Oberholtzer (99) evaluated an experiment with an integrated program and showed that the pupils pursuing such a program achieve more than children in the conventional school. Wrightstone (145)

proposed criteria for the evaluation of state programs of curriculum reorganization.

Conclusion

The present reviewers believe that the last decade, and perhaps even more the last four years, has been a rather confused, transitional period from which it is to be hoped that a clearer philosophy and better research may, in the next decade, emerge.

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CHAPTER II

Organization of the Curriculum

FRANK A. BUTLER

ORGANIZATION OF INSTRUCTIONAL MATERIALS designates the sequence in which educational experiences unfold during the process of learning. Instructional materials have commonly been organized by subjects within which the chronological and logical sequence determined the order of development. For ages subject lines have characterized the organization of instructional matter. The psychological as opposed to the logical approach has changed the sequence somewhat in many instances, but this change has generally occurred within subject boundaries. Deviations from the logical and rigid organization by subjects and within subjects typify the recent attempts to provide a different and supposedly better kind and sequence of educational experiences.[1]

Opinions differ widely as to the merits of any particular arrangement of materials. Bagley (3) stated: "The Essentialists have always emphasized the prime significance of race-experiences and especially of organized experience of culture—in common parlance, subject-matter." Kilpatrick (16) believes that, "To base a curriculum on a scheme of set subjects is for most children to feed them on husks; the plan here advocated is devised to bring life to our youth and bring it more abundantly."

Broad Fields of Study and Areas of Living

Dillinger (7) stated, in the recent revision of the Missouri curriculum: "The Missouri program is committed to a philosophy of general education at the secondary level. The planning committee believes that it is desirable to organize the general program around certain life problems. It believes, however, that these problems can be developed most effectively within certain large learning areas, rather than in a program which abandons all subject divisions." He then listed the broad learning areas as (a) language arts, (b) social studies, (c) mathematics, (d) health and physical education, (e) nature sciences, (f) practical arts, and (g) fine arts.

Indiana (23) held to the basic subject fields but revised the organization within fields. Social studies materials, for example, are selected and organized to conform to the areas of experience appropriate for study on a particular level: first year, adaptation of individuals to group, home, and school life; third year, understanding life in the broader community; sixth year, understanding the contributions of the Old World to American ways of living; junior high school, group life and problems in the com-

[1] Various forms of administrative organization to aid in adapting school experiences to pupil needs were discussed in "Organization and Administration of Education," *Review of Educational Research* 10: 315-23; October 1940.

munity and state and in the United States; and high school, group life and problems in the Eastern Hemisphere, in the Western Hemisphere, and problems of citizenship in our own country and in other parts of the world.

Characteristic of several state and community revisions is the determination of areas of human activity. The Mississippi Program for the Improvement of Instruction (19) has nine areas: (a) "Protecting Life and Health." (b) "Making a Home," (c) "Conserving and Improving Material Conditions," (d) "Cooperating in Social and Civic Action," (e) "Getting a Living," (f) "Securing an Education," (g) "Expressing Religious Impulses," (h) "Expressing Esthetic Impulses," and (i) "Engaging in Recreation." These nine were selected after a study of thirty-eight classifications as derived by research investigations, students of society, and educational leaders. The nine areas serve as a basis for defining the general scope of the core curriculum and the centers of interest or emphasis. Similar areas of human activity characterize a number of other state curriculums, for example, Virginia, Missouri, and Indiana.

Jacobson (12) wrote that the faculty of the University of Chicago High School "feels that a vital reorganization of general education within the framework of the present subject matter departments can be achieved . . . it would include correlation as a method of teaching whenever or wherever it has meaning." Frederick (10) made an examination of books, research investigations, courses of study, and articles relating to research in curriculum construction, 130 of which were carefully selected and studied. He found that during the last two decades the combining of separate subjects into broad fields, such as science, mathematics, social studies, and language arts, and the correlating of work in different subject fields were two of the trends frequently mentioned. Broad subject field organization in general education rather than separate subject organization within a field is reflected clearly in the studies of the Commission on the Secondary School Curriculum (24). The needs of youth should determine the source and the organization within the broad fields.

Organization in Terms of the Problems of Youth

Organization of learning experiences that disregard subject lines is probably the most recent innovation. Aikin (1), reporting on the Eight-Year Study of the Progressive Education Association, described the endeavors of a group of thirty secondary schools to organize experiences on a different basis in general education or the core curriculum of the thirty experimental high schools and the effect of this training upon later success in college. "Almost all the schools were trying from the beginning of the Study to find ways of breaking down the artificial barriers which unfortunately separated teacher from teacher, subject from subject." Schools most experimental in nature deviated most widely from the attempt to "put subjects together." Stress was "upon the problems which young people face while

they are still *young* people, upon the concerns of high-school students while they are still in high school." This stress was upon "problems" and "concerns," with disregard to subjects as such. Aikin reported that "1,475 pairs of students were studied—those entering college in 1936, for four years; those entering in 1937, for three years; those entering in 1938, for two years; and the class entering in 1939, for one year." A pair consisted of one student from one of the thirty experimental schools and one student who entered college in the traditional college preparatory manner. Several conclusions are: "It is quite obvious from these data that the Thirty Schools graduates, as a group, have done a somewhat better job than the comparison group whether success is judged by college standards, by the students' contemporaries, or by the individual students. The graduates of the most experimental schools were strikingly more successful than their matchees . . . students from the participating schools which made most fundamental curriculum revision achieved in college distinctly higher standing than that of students of equal ability with whom they were compared . . . the assumption that preparation for the liberal arts college depends upon the study of certain prescribed subjects in the secondary school is no longer tenable."

Unit Plan of Organization

A decade ago Billett (5) found that unit organization of materials was one of the three general ways of providing for individual differences in secondary schools. Today's educational literature on the unit is astoundingly voluminous both in the discussion and production of units. The Morrison concept (20) of unit organization has expanded to mean "all things to all men." Whatever the external framework of recent organization may be, the internal arrangement is generally in terms of units. Unit organization is actually inherent in any arrangement wherein terminology includes topics, problems, or projects. A unit encompasses logical or psychological approaches. From blocking a subject off into logical and unitary divisions all the way to treatment of areas of experience of vital concern to youth, the unit has stretched and held its name intact.

Frederick (10) found there was a "trend for the core curriculum to be organized into units of experience based on significant situations, phases of life, interests and needs of pupils, or problems which pupils now face or will face in the future." Mackenzie (18) reported that secondary schools in California which had made significant progress in reorganization of their programs in the core curriculum used the unit organization within subjects or in problems of life or areas of experience.

Activity Programs and Organization

While no standardized sequence of school experiences holds in activity programs, there is the tendency for these programs to deviate little or much from the customary subject treatment. Dissociated from the pure activity

in learning, the programs include topics, imaginary trips, projects, problems, units, and other ways of organizing experiences in terms of pupils' needs, interests, and abilities.

Jersild and others (13) reported on one of the early evaluations of the large-scale experiment with the activity program in the elementary schools in New York City. They defined activity education as a "program based upon units of pupil activity as a substitute for and supplement to the traditional textbook learning." This experiment was started in 1935 in seventy elementary schools and continued for a period of six years. The report is based upon evaluation of eight control and eight activity schools comprising Grades IV, V, and VI. Early testing indicated that "activity classes consistently surpass control classes in quality of cooperative, critical, experimental, leadership, and self-initiated activities; children in the activity classes lag appreciably behind children in the control classes in some of the educational outcomes which are measured by an achievement test of academic skills, mainly arithmetic and spelling." Morrison (21) also reported on a follow-up survey of the New York City Activity Program made by the state education department by request from the New York City Board of Education. A fuller statement appears in the chapter on "Activity Education," which follows. The Progressive Education Association committee to report on evaluation of newer practices in education (25) found that "where schools have adopted newer educational practices the children learn as much of the ordinary school subjects as they would otherwise have learned. Sometimes they learn slightly less and sometimes slightly more, but the differences are small. . . . Where any measures have been applied, there is a definite gain in terms of initiative, skill in dealing with problems, knowledge of contemporary and world affairs, and social participation."

Organization of Courses of Study in Three Fields

Bruner (6) had access to eighty-five thousand courses of study on file in the Curricular Laboratory and Library of Teachers College, Columbia University. His study, which covered a period of five years, was limited to an analysis of the outstanding courses in social studies, science, and industrial arts from 1930 to 1940. His findings were as follows:

Science—Emphasis on the logical development of subjectmatter, with its resulting narrowing effect on scope, was most noticeable in the specialized sciences, namely, physics, chemistry, and biology. All the courses in general science, with the exception of one, tended to emphasize functional values, with a resulting greater attention to social applications than to predetermined sequences.

Social studies—Eight types of social studies organizations were found: (a) separate subjectmatter organization (overwhelming majority of the 5,029 courses fell in this category); (b) correlation between and among different social studies areas; (c) correlation with other subjectmatter

areas; (d) modern problems organization; (e) broad-fields organization; (f) core curriculum organization; (g) guided experience organization (teacher guidance); and (h) pupil experience organization (growth of pupils through experiences in which they are keenly interested).

Industrial arts—The internal organization was of three types: (a) formal arrangement or combination of skills, processes, or knowledges; (b) sequential projects prearranged; and (c) project differentiated to meet individual needs.

Organization for Academic and Nonacademic Pupils

The Research Division of the National Education Association (22) received questionnaires from 1,062 secondary-school principals who expressed their opinions pertaining to provisions that should be made for superior students. A large proportion believed that superior students, whether in separate or regular classes, should be given especially enriched programs of work; the material should not be merely more of the kind given to average students but mainly the kind that will deepen and strengthen their understanding of the world and which will stimulate their superior powers of reasoning and invention. Opinions about ability grouping were evenly divided.

In their study of provisions for the educationally neglected (nonacademic, slow-learning) pupils, the National Association of Secondary-School Principals (8) advocated the development of modified courses and differentiated programs for the college preparatory, commercial, and educationally neglected pupils. Attempts to "dilute" the conventional subjects to suit individual differences have proved unsatisfactory.

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CHAPTER III

Activity Education

KATHARINE B. GREENE

Spread of Philosophy of Activity Education

ACTIVITY EDUCATION has spread rapidly during the last several years, as findings from the fields of psychiatry, psychology, and education have permeated the ranks of educators. The objective of education is now often seen as the development in individuals of a spirit of independence in solving the problems of life, through experiential understanding of the behavior and motives of themselves, their fellows, and the community; the development of rules in the attack on these problems; and the cultivation of attitudes for the confident approach to these problems. Locke's theory of the *tabula rasa* is at last being supplanted by the theory that the child is an active, reactive individuality, unique in himself—a theory which in American education can be traced primarily to the teaching and philosophy developed by John Dewey.

This change in educational principles has not been adopted wholesale; in its very nature it cannot be imposed from without. It has seeped through our educational program, appearing in many different places in established systems, as individual educators have become convinced of its validity. Usually it has come into conflict with dominant patterns of authoritarian discipline and frequently it has been the source of emotional conflict between its adherents and those who believe in the establishment of rule, authority, and discipline for the sake of discipline.

With its emphasis on the value of individual thinking and adaptation to the actual situation of each problem, the philosophy underlying activity education appears in as many different guises as there are situations and workers. It is therefore impossible to summarize the work done in rules which are universally applicable. Only the philosophy is general, while each educational application differs from every other application. No one stated application can be called the only true activity education. If educational practice becomes crystallized, we shall no longer have true activity education.

Since the Deweyian philosophy has seeped through to education from various points, there are many different levels of progress in its educational application. Some learning situations have just begun to respond to its influence, some are well enough along so that descriptions of them are available, and few of them have reached the level at which it is possible to compare results through analysis and research technics.

Working Concept of Activity Education

Since activity education appears in many different guises and on different levels, the following definition of limits has been used to determine what falls in this field. It is activity education when the teacher and children who are in the learning situation do the planning of the curriculum, select the methods to be used, and appraise the results, while all the administrative, research, and special resources of the school and community are called upon for help, but do not interfere by determining from outside exactly what is to be taught and how. In activity education, the center of thinking about educational problems and their solution is within the group, all other individuals and groups being secondary, revolving around the center. Better forms of activity education consider the community and appraise results realistically in terms of community value, but are not coerced nor hampered arbitrarily by conclusions of outsiders.

A rough rule of thumb for measuring quality of education in the group is to measure growth and change in the teacher, for no matter how much the group may ape forms of activity education it is not real if the teacher comes out at the same point at which he entered. There is much sporadic activity education carried on in standard schools, within limitations imposed by the requirements of the system and the community: good teachers under any system have believed that each child was an individual and have stimulated him to draw conclusions from his own experiences. A real loss to educational advance has been that often the teacher is not encouraged to continue his growth and that of the children, but is hampered by criticism and pre-formed judgments.

Treatises and Reports on Activity Education

Recent authors dealing with activity education in general are De Lima (13), Heffernan (34), Leonard and Eurich (25), Lane (24), Melvin (30), and Washburne (35). These volumes give good descriptions of practice in individualized activity schools, with general explanations of underlying theories. It is possible from these summaries to compare technics and results on a subjective basis. There are more limited reports which give practical advice in showing how activity education is carried on, as in *Educational Method* (14), Heise (17), and the San Diego monograph (41). In New York City, the Speyer School did early experimental work with the activity program. The conclusion of Pritchard and others (39) based on the work with slow learners was that there was no noticeable improvement in ability of slow learners through the methods used then. An article by Burton (11) gives a general summary of current educational attitudes toward activity education, and Baker (40) summarized activity education for the lay reader.

The New York City Experiment

This is the largest experiment in elementary activity education which has been carried on and evaluated by accepted research procedures. It has been reported in numerous articles (18, 20, 21, 22, 28, 29, 31, 42, 47, 49). The final statements made by the research workers carry weight. Jersild, Thorndike, and Goldman concluded (21: 308):

> While the control children seem to have a slight but statistically unreliable advantage as far as achievement in academic subjectmatter is concerned, the activity children surpass the controls in the frequency with which they exercise such presumably wholesome activities as leadership, experimentation, self-initiated enterprises, participation in oral discussion and the like. The activity children have more experiences and show more tangible accomplishments in the fields of the arts and crafts. The activity children, as already noted, also tend to be superior in tests that call for intellectual operations such as those involved in the Wrightstone tests of working skills, explaining facts, applying generalizations, current events, what you believe, and personality reported in the main body of the present study.

Morrison's survey (31) gives statistical tables for comparison of results in activity and nonactivity schools for mastery of skills and knowledge in the sixth school year; educational growth in fourth, fifth, and sixth school years; attitudes and behavior of the children; teachers and the activity program; and parents and the activity program. In the summary (p. 162) it is stated that:

> In the mastery of knowledge and skills, three conclusions are supported by the data reviewed . . . : (1) the only statistically reliable differences between the two programs favor the activity procedure and are found in those areas affected by the latter's emphasis upon developing skill in critical reading, in the use of elementary research techniques and in the development of civic attitudes and understanding of social relationships; (2) in all but three of those areas of knowledge and skills wherein the differences found favored the regular program, improving the sampling of the activity program tended to lessen or to eliminate the difference; (3) the activity program may be continued and improved with reasonable assurance that children will gain as thorough a mastery of knowledge and skills as they would in the regular program.

One of the standard complaints about activity education by casual observers is that it is disorderly and children are not learning to respect authority. Morrison (31: 163) stated:

> The fear that the activity program might tend to cultivate a certain lack of respect for authority seems to rest solely on observed behavior of children in the early stages of transition from outward control by the teacher to inner self-control. In respect for school authority the activity children tend to excel. If the activity program has fostered less respect for the authority of the home the parents have not discovered it.

With regard to the development of such attitudes as could be measured at present, Morrison reported (p. 162f):

> In the appraisal of the school's influence upon the attitudes and behavior of pupils outside the classroom, certain conclusions are evident: (1) pupils in the

activity schools like school better, find it more interesting, and tend more to carry its influence into their life outside the school; (2) pupils in the activity schools tend to excel and in some cases by reliable differences in such qualities as cooperativeness or working together, self-confidence or poise, lack of subservience, creative abilities, self-discipline and scientific outlook; (3) in developing respect for the authority of home and school, the two programs are almost evenly matched in the outcomes.

There is no attitude that the problem is solved and can be pigeonholed. Morrison (p. 164) said: "Much attention needs to be given to improving the activity procedure even in those schools that have been committed to its development. . . . Before they undertake its practice, teachers and principals need to give careful consideration to the theory of the activity program; yet a thorough understanding of its objectives is possible only through practice in trying to attain them in the school's work. . . . Teachers need expert assistance in obtaining mastery of the methods and techniques of the activity procedure."

Experiments on the Secondary and College Levels

Activity education has been described by a class which went through Ohio State University High School (36). The students reported (p. 296):

> We have never had the feeling of having education handed to us already to be absorbed, but have been stimulated to the desire to learn, discover things in our own way, and think for ourselves . . . because it will be necessary for us to be a part of a democratic order, our teachers feel and have made us feel that we should begin to think and do for ourselves while we are young (p. 298). Because of the fact that we do not have a required amount of work, it would be possible for us to continue most problems indefinitely. This makes us feel that we could always go further and that our work is never finished. . . . Discipline has never been a very grave problem in our school, and we, as students, have never been very conscious of it. There is not a long list of hard-and-fast rules, but individual problems are taken care of as they arise.

The work of the Progressive Education Association in the Eight-Year Study (1) is the most extensive in the secondary-school field, involving thirty schools whose application of the principles of activity education ranged from slight variations of standard forms of education to radical innovations. Since college entrance is a recognized goal of high school, the experiment could not begin until some three hundred colleges agreed to accept graduates of cooperating schools on more flexible terms than are usual. Now the Association hopes that other secondary schools will be granted this same freedom to develop curriculums in keeping with the needs of students and the community. The Association proposes that, until colleges organize their own purposes and know what candidates should present to fit them for college, restrictions on high schools be lifted; that what is needed for college preparation should be worked out by high schools and colleges cooperatively; and that needed information about students should be presented to colleges by high schools through some means other than issuing certificates that certain courses have been taken.

The thirty schools say this about curriculums (p. 138): "First, every student should achieve competence in the essential skills of communication . . . and in the use of quantitative concepts and symbols. Second, inert subjectmatter should give way to content that is alive and pertinent to the problems of youth and modern civilization. Third, the common, recurring concerns of American youth should give content and form to the curriculum. Fourth, the life and work of the school should contribute, in every possible way, to the physical, mental, and emotional health of every student. Fifth, the curriculum in its every part should have one clear, major purpose."

Dean Hawkes reported on the college success of students from the experimental secondary schools (1: 149 f): "On the whole, the students from the Thirty Schools were superior to the control group. . . . So far as these data are significant, the students from the schools whose pattern of program differed most from the conventional were very distinctly superior to those from the more conventional type of school."

Lack of Appropriate Research Technics

The greatest amount of reported material on activity education is on the descriptive level. Here the work is still tentative and subjective judgments are necessarily used in appraising results. Research in many cases is hampered by several restrictions. There are too few students studied and far too short a time to justify statistical analysis; also there are too few research tools for the study of planned purposes of activity education. The lag in development of research tools means that while we are able to test adequately acquisition of knowledge (which is the goal of authoritarian education) comparing children's achievement in school A with that of children of equivalent ability in school B, in arithmetic, spelling, or reading, we cannot so readily compare the extent to which children have reached goals stressed by proponents of activity education. There are too few tools developed for measuring social adjustment, leadership, cooperation, intellectual interest, scrutiny of a situation for its true values, liking and understanding of individuals with different patterns of living, willingness to see and attempt to solve problems in living, and knowledge of when to use tools, according to one's ability and control of them.

It is a slow process to construct and evaluate tests in this new field. There have been several starts which are suggestive for later work. Anderson (3), Bavelas and Lewin (5), Brewer and Anderson (9), Heise (17), Jersild (19; 22, Part 2), Lane (24), and Lippitt (27) offer materials which may be worked up into objective measurement of the teacher's influence in educational situations. Anderson (3) Barker (4), Bingham (8), Finley (15), Heise (17), Jones (23), Lewin and others (26), Morrison (31) Murphy (33), and Wrightstone (49) give examples of various methods of measuring results which are stressed more by activity

than by nonactivity education. The development of research tools other than academic and intelligence tests, to measure contributions to growth of children by activity education, is a very necessary next step before further evaluation will offer us much new light on the comparisons of activity and nonactivity (or standard) educational procedures.

The Teacher and the Environment in Activity Education

While the teacher may be the most potent single force in the child's education, he is not the only one. There is a strong trend in activity education to recognize this fact. Teachers who wish to understand effects of the out-of-school environment on their children will find the work of Skodak (43) stimulating although later work does not confirm all the data. The influence of evacuation from danger areas was discussed briefly at a meeting of the British Psychological Society (10). The influence of Gestalt psychology on the study of social relations has great significance for activity education. Children's responses to democratic and authoritarian group atmosphere, described by Lippitt (27), showed marked differences in favor of democratic procedure in producing good social behavior in the children, efficiency in production, and continuing interest. Authoritarian procedure, however, was not a duplicate of the situation in the world in general, since the children did not feel that the sanctity of tradition was on the side of authority and did not feel that sense of service to an ideal which the authoritarian movement has sometimes successfully invoked.

Lewin, Lippitt, and White (26) have studied aggression under differing social conditions. An article by Zachry (50) considered effects of psychiatric interest on education, while a more theoretical article by Frank (16) clarified the impact of the social milieu on individual growth. Prescott's book (38) is source material needed by every activity teacher for understanding his function. While much psychiatric technic is not available for the layman, the educational process itself may be used for promotion of good mental health. Articles by Finley (15) on class structure, Bender (7) on group activities, and Curran (12) on art, all point out methods of utilizing educational facilities for analysis and improvement of mental health. The meeting of the British Psychological Society (10) represents a study of children's problems in wartime, the recognition of which will alter the attitude of teachers toward children in peacetime education.

Many standard elementary schools have gradually adopted activity procedures from successful methods used by nursery schools. Since authoritarian pressure to cover ground and impart information has not weighed so heavily on early elementary years, it has been easier to introduce new methods without censure. Centers for the study of preschool children have sent out trained workers whose influence on educational practice has been marked.

Learning Is Many-Sided Development

Three generations ago, in the United States, education beyond the first three or four grades was largely considered as professional preparation. Sixty years ago it was not possible to obtain a free secondary-school education in Brooklyn. When formal schooling was so limited in purpose, the majority of our population got their real education outside school. Now our free schooling has been extended to care for all educable persons well into the teens, but there is still a division between what the majority need and what schools offer. The idea that we are concerned with more than intellectual processes can be traced to the work of G. Stanley Hall. The "whole child" is a phrase which denotes at least lip service to this concept. Another analysis of children's problems in education was summarized by Olson and Hughes (37) as "Organismic Age." Olson's results showed that the learning rate is affected by several factors besides the commonly accepted one of ability. Jones, Conrad, and Murphy (23, 25) traced the relationship between development in emotional and social fields and learning. For all those who wish to follow developments in this field, the work of Murphy (32, 36) is an excellent guide. Strang (46, 48) offered a guide for teachers who wish to apply available technics to the study of children whom they are helping, while Jersild (19, 20) presented a picture of the teacher as a "whole teacher" (as children see him) and Brewer (9) presented tools which may be of use to the teacher in measuring his own effect on children. Bell (6) outlined some considerations of the nature of children and the learning process which teachers should know, and Stoddard (45, 47) drew conclusions as to relations between findings in child psychology and educational theory from his experiences in both fields. Research in development during early ages is exemplified by Anderson (3), Barker (4), Murphy (33), and Updegraff (48).

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CHAPTER IV

Philosophy of Education

FREDERICK S. BREED

Decline of Opposition to Philosophy

ONE WOULD HAVE TO BE AFFLICTED with a species of mental blindness who has failed to observe, during the past generation, that the reputation of philosophy among educators has been clouded with suspicion. Indeed, education as a field of study is not alone in this respect. In numerous areas where scholars ply their craft, the feeling has spread that philosophy represents a futile approach to the solution of the problems of the world. The "speculations" of the metaphysician have been unfavorably contrasted with the verifications of the scientist, and students in considerable number have turned their backs on philosophy, preferring to accept the faith of leaders who grew up in the same tradition as themselves and as unencumbered with a knowledge of the subject. For better or for worse, however, the resistance to philosophy is perceptibly weakening. The barriers to philosophic study are being swept aside. Evidence that a change of attitude is taking place can be found in the organization of the Philosophy of Education Society in 1941; the publication of the Forty-First Yearbook of the National Society for the Study of Education, Part I (3, 6, 11, 14, 15); and the decision of the editor of the REVIEW to admit a chapter on this subject.

Prior to these events a situation developed that had a more deterring effect on the opposition than any of them. This was the unmistakable demand for improvement of the instructional approach in the classrooms of the country, reflected in the progressive movement, and the fact that the principal inspiration for this demand had its origin in philosophy. It shortly dawned on intelligent observers that the experimentalism upon which the new movement was based had a broader foundation than the experimentalism of educational science as currently pursued, that the reform under way could not be properly appraised until it was understood, and that it could not be understood without a degree of competence in philosophy. Thus seems to be explained the recent rejuvenation of philosophy as an educational discipline, a discipline that in no way impugns the findings of science but, on the contrary, takes them wholeheartedly unto its bosom.

Numerous Philosophies of Education

Before entering into a discussion of the broader foundation for educational thought provided by philosophy, it seems proper to devote a

moment's consideration to the title of the present chapter. One may champion the value of philosophic reflection, and indeed have a cherished philosophic outlook of his own, but still lack the presumption to offer this outlook as the only hope of salvation for educators. The possessor of the outlook may believe nothing less, but others will easily be found who believe something else. Accordingly, no trace of dogmatism lurks in the title for the chapter; the caption is intended only to suggest a deep felt need for a clarification of the basic ends of democratic education. It implies a latent confidence that by giving thought to this problem, with all the resources of knowledge available, the major purposes to be achieved in the schools can be brought into clearer light so that energies now scattered may be focused for their realization.

For years Dewey was so exclusively prominent as an educational philosopher that it was natural for many to conclude that the only philosophy of education they knew was the only philosophy there was. But even then Dewey made no claim that his instrumental pragmatism was more than *a* philosophy of education. Today educators are in a better position than ever before to appreciate the meaning of this fact, thanks to such timely publications as Brubacher's recent volume (7) and the 1942 Yearbook of the National Society referred to previously.

The pattern of a sound educational philosophy is logically inseparable from one's philosophy of life, and the latter may take any one of several fundamental forms or combinations thereof. These forms are quite familiar in the annals of philosophy and go under the names of idealism, realism, instrumentalism, scholasticism, and the like. The differences that obtain among these viewpoints stem mainly from different conclusions about the nature of the knowledge process.[1] Since this process, known otherwise as the thought process or the process of reflection, is central in education, it is clear enough that the same differences in theory of knowledge will also mark off the leading points of view in general educational theory.

Possibility of Greater Agreement

It is significant that while all the contributors to the recent National Society yearbook on the philosophies of education agree that respect for personality, for individuality, is the primary educational principle in a democratic state, they diverge considerably on the nature of religion and its relation to education, on the nature and function of discipline, on the notion of truth and its degree of authority, on creativity in experience and education, on the instructional approach to be employed in the schools, and, lastly, on that extremely crucial topic, the nature of value, general as well as educational.

[1] The writer has discussed the points of difference between instrumentalism and realism in the yearbook referred to, p. 87-138. This is a family quarrel which is forgotten by these empiricists whenever absolutism, their common enemy, appears.

It is apparent that the present situation in the field of educational philosophy calls for a high degree of tolerance and patient comparison of views. It is surprising that Brubacher (6) did not find more points of resemblance among the different educational philosophies which he examined. As discussion proceeds, however, it is not too optimistic to expect that points of difference that spring, as many do, from lack of information, misinterpretation of fact, inconsistency of thought, and the miscomprehension of opponents will tend to disappear. If so, areas of agreement should be enlarged as the various outlooks are more fully explored.

Persistence of Fundamental Differences

Exploration has already gone far enough to show, however, that the leading outlooks on the world and education are each founded on relatively few fundamental propositions known as assumptions or presuppositions. Such propositions are neither God-given revelations nor absolute truths achieved by human intelligence, say the empiricists; they are but generalizations from experience—hypotheses, if you will, supported by belief. It is not difficult to see how such fundamental principles operate in the lives of those who take them seriously. They naturally give rise to different ways of looking at life and education. The devotee of the Absolute lives in a world serenely guaranteed, where all is well from everlasting to everlasting, even if he occasionally leans back in his easy chair, lights up a cigar, and takes a moral holiday. By the same token the pantheism of Mary Baker G. Eddy excludes the reality of evil and explains the familiar attitude of the faithful toward error and disease. Similarly, the scientific determinist has no room for ethics in the sphere of human relationships, for it consistently disappears in a mechanical world controlled throughout by natural causation, as he defines it. In contrast, many realists and pragmatists have achieved a deserved reputation for being tough- rather than tender-minded because they are consistently prepared to face the tribulations of the universe with no greater revelation than natural knowledge, no better guide to conduct than human intelligence, no more certain guarantee of salvation than human effort. For this variance philosophers are disparaged in certain quarters, even though physical scientists in the same manner and for the same reason hold different hypotheses regarding the nature of light, biologists are divided on the causation and extent of heredity, and psychologists are at odds concerning behaviorism, the proposals of the Gestaltists, and the nature of consciousness itself.

Democracy Must Decide

The moral of these examples is not far to seek. They suggest clearly enough that the facts in our possession are not everywhere susceptible of an unequivocal interpretation. Important controversial issues still divide the ranks of scholars in all fields, and with the differences in concepts are

correlated differences in practice. Where an issue is thus in doubt, a democracy can either allow competing views to flourish unmolested in the spirit of an easy tolerance or by majority vote select and reject as seems most beneficial for the interest of society. It is a mistaken notion to believe that education should proceed according to the doctrine of *laissez faire* while economic and political interests are being subjected to control. Education functions as a part of the general social fabric. The national system of education should be analyzed with a view to determining the major ends to be achieved, and these ends, with popular approval, should become the distant goals of instruction in the schools, subject always to modification dictated by experience, including, of course, the results of research. Unanimous support for an objective is no more necessary in education than it is in politics. In either case, the opinion of the majority should prevail. The important democratic consideration is the open door to truth, the essence of a true progressivism.

At this juncture the reader may be disposed to scratch his puzzled head and opine that the immediately foregoing statement has a peculiarly familiar ring. "I have it," he may finally affirm, as a faithful memory harks back to the scholasticism of Mortimer Adler echoing through the racy ironical pages of *The Higher Learning in America* (12). It is true that we are anticipating a more definitive, a more positive, organization of public education, just as Hutchins is striving for a similar reform in higher education, but with a distinction in methods of approach that marks a tremendous difference.

The Decision of the Modern Scholastics

The framework of the Hutchins reform rests on the philosophy of St. Thomas Aquinas. More broadly, it is built on the philosophy of absolutism. Adler acts as a modern exponent and interpreter of this philosophy. Hutchins concerns himself largely with the educational applications. The product of their endeavors has received acclaim from the high priests of Roman Catholicism because Thomism figures so prominently in the official philosophy of the Catholic church (15). The program of reform has been scorned by empiricists as medievalism because it is a reversion to scholasticism. It is also a reversion to Aristotelianism through St. Thomas Aquinas.

In the Hutchins proposals empirical thinkers, including the scientific group in education, can find much to approve. Emphasis on the interest approach, on the historic contributions of human intelligence, on the integration of college departments, and even on the warmly debated 6-4-4 plan need not be occasion for alarm to empiricists, or so it seems to the writer. But many of the most progressive adherents of this philosophy stand adamant against the metaphysical core curriculum proposed for adoption at the University of Chicago.

Empiricism versus Absolutism

The frustration of the reformers on the home front is a direct result of a serious clash between two fundamental philosophies of life. Adler and Hutchins make a sharp distinction between philosophy and science; their empirical opponents make no such distinction. With the former, philosophy provides a technic for laying hold of absolute truths, with the latter, the principle of induction is still the foundation of all knowledge, and the relativity of truth its natural and accepted consequence. According to the empirical doctrine, philosophy is but a venture in the direction of greater generality of thought. The "clear and distinct ideas" that pass with the absolutists as revelations of the cogitation of Almighty God are regarded by the empirical group as impressive examples of self-deception and misinterpretation. The latter group are yet to be convinced that there are any self-evident truths in the sphere of term-thing relationships, which includes the basic knowledge of science. This is not to say that basic relationships discovered by experiment and expressed in mathematical form may not be used by an Einstein for the discovery of relationships hitherto unknown. This technic is a commonplace with mathematicians. But the conclusions reached can never be more secure than the facts assumed as a basis for the proof, and these are characterized by their relativity, which means that they are subject to revision as research proceeds.

Some of the obscurity that hangs over this theoretic struggle like a fog can be dissipated if the crux of the problem is more definitely identified. To the writer the fundamental issue arises from different conceptions of the nature of value. This statement of the problem covers not only the value of truth but value in general. Adler charges that the present-day empiricists ("positivists" to him) have brought modern culture to the brink of ruin through their impotent skepticism. He is irked by their insistence on applying scientific rules of evidence to his proposals for their redemption, when the fundamental values of human experience, according to him, are not empirically established. These values include the ends, objectives, or goals of education, hence the general alarm in educational circles.

An Empirical Theory of Value

The empirical conception of the determination of value can be briefly described, even if it cannot be adequately discussed, within the narrow confines of our allotment of space. To avoid ambiguity it should be observed that the term "value" is commonly applied to that which is valued as well as to that which confers the status of value. Let us abstract, for the moment, from the question of determining *what* objects or, more broadly, experiences are valuable, and note, if we can, *how* their value is achieved. In what, the question is, does their value reside?

Let us hark back for a moment to the value of truth. A truth is a belief,

say the empiricists, that has been verified by experience; but the verification is not the evaluation, else the professor who bases his profession on useless knowledge, without professing to do so, would never have won his present unenviable distinction in comedy and the comic strip.

Value as known this side of heaven is a product of human reaction. Nothing, as far as known, seems to have value in itself. The attitude of man to an object or event determines its value. Value, that is, is attached to an object by virtue of a type of external relation to humans. Fundamentally, a thing is said to have value if it is attractive to humans: and that is attractive which attracts. Some empiricists express this basic notion in terms of interest (17); others employ such terms as preference or desire or demand, but no divergence of view worthy of note is reflected in the phraseology. Pursued somewhat further, the roots of value are found hidden away in the reactions of selection and rejection, in the positive and negative responses of the organism to the elements of its environment. It is appropriate, therefore, to speak of positive and negative value. For citizens of the United States democracy possesses the first; totalitarianism, the second.

The Failure of Infallibility

In the educational controversy with which we are concerned, it now becomes important to devote attention to the things that are valued. Under this category belong the fundamental objectives of education. In the choice of ends one may rely on the purportedly infallible reason of an Absolutist, on a conception of reasoning borrowed from the ancients, or one may proceed in terms of the conclusions of modern psychological science regarding the nature of the reasoning process in man. The modern scholastics, however, show little interest in the James-Dewey tradition in scientific psychology, preferring exegetical studies of Aristotle, Aquinas, and St. Augustine to illuminate their pathway. Challenged to produce infallible selections of educational ends, "evident or self-evident truths that can be affirmed without demonstration," they have illustrated their mode of procedure in a series of syllogisms which leaves one as much in doubt as the classic "proofs" of the existence of God. It will be interesting, if not astonishing, to note that their quest for certainty is pursued with undiminished confidence, even though the "proof" at various points rests "upon certain evident truths known by intellectual observation of existing facts." It is not surprising, therefore, that Adler terminates his effort with the admission that "no adequate demonstrations have been completed" (1).

Scientific Determination of Value

The empirical school of thinkers finds the value problem in the field of existing facts. Humans are observed to assume a specific relation to

objects, known as the value relation. The situation can be symbolized in the expression *A r B* in which *A* and *B* signify the terms related and *r* represents the relation. All three elements in the situation are regarded as objective—discoverable existents in the external world. Hence, say the scientists, value is a legitimate subject for objective investigation. The difficulties of research in the field are practical, not theoretical. The problem becomes one of identifying the fundamental interests of humans. The uncertainty of scientific truth is no sufficient warrant for deserting the scientific method. Interests lie in the open field of observation and are already being extensively studied. They will no doubt be more extensively studied in the days to come. Better and better ways will probably be devised for determining whether the individuals in a given group or in the nation at large are interested in a given objective, and whether they are more interested in it than in certain other objectives.

An end, when and if achieved, is conceived as a state of human welfare, a condition in social life. If one proposes prohibition of the sale of intoxicating liquor on a nationwide scale, we are confronted with the question, How will it probably affect the general picture of social life? If dependable data relating to its effects in this or other nations are available, these data are consulted first. Then are canvassed the considered opinions of persons whose experience and training seem to give them a preferred position as judges. Finally, with such information before them, the population in a democracy or its political representatives are polled. The vote is taken as an approximate measure of value. Thus in a democracy are political and economic ends selected, though seldom educational ends. The latter are usually left to representatives of the people in a legislature or a board of education, after a recommendation by an assumed expert. But it is neither improper nor inconsistent with the democratic tradition for great educational issues to be taken to the people for decision.

Which reminds me of an absolute idealist who created a considerable stir in psychology during the early years of the present century—Hugo Münsterberg. It is painful to recall, for example, how one evening in his seminary, Münsterberg administered a *coup de grâce* to democratic government with the impressive assertion that one cannot derive the truth from a majority vote. And so, apparently, we did not in the postwar adoption of prohibition. But nobody imputes clairvoyant insight to the maker of an American ballot. His vote for prohibition was a positive reaction reflecting a readiness to undertake an experiment which might or might not eventuate in keeping with his evaluation. It is a privilege of a democratic citizen, as it is of a scientist, to alter his attitude as new facts develop. Thus values, like truths, are arrived at by experiment. Whether the democracy shall be "wet" or "dry," indeed its form in general, we believe, should be determined by experiment. This is an impossible method for one who is obsessed with the infallibility of his own ideas in the discovery of ends and would be limited to the discovery of means.

A Crucial Educational Problem

The most vital question in education today concerns the direction of its orientation. When the ends are determined, the orientation is determined. If the ends are selected by the cult of the infallible, what is in store for the curriculum but the stagnation of a dogmatic religious creed? The proposal to inquire into the fundamental principles of the various sciences and to investigate the interrelations among the sciences, with a view to a better grasp of the organization of human knowledge and thence of the foundation of the curriculum, indeed to organize a special faculty to conduct such research to this end, need not strike terror to the heart of any scientific educator. He should favor the extension of scientific study to the fundamental concepts employed or implied in his and other subjects. But this program of research can be carried out in an empirical or scientific universe of discourse and indeed is now under way on an international scale in the unity-of-science movement. The real threat to scientific interests lurks in the personnel of the "metaphysical" faculty. If the court is packed with the cult of the infallible, the nature of the decisions can safely be forecast.

If justification were needed for the rather lengthy discussion of the Chicago situation, it may be found not only in the wide interest taken in this situation but also in the fact that the problem involved suggests the need for the type of fundamental inquiry which was hereinbefore defined as the philosophy of education.

Humanism and the Causal Law

The pragmatism of James (13), the instrumentalism of Dewey (8, 9, 10), the experimentalism of Kilpatrick (14), and the organic realism of Whitehead (19) are all empirical philosophies. They accept the unity of science and philosophy. They rely fundamentally on generalizations based on particular experiences. In fact, all four of these outlooks may be described as generalizations of the scientific method. Where they diverge one from another in educational theory, or elsewhere, the divergence is mainly due to varying interpretations of available fact. Lastly, each of these philosophies may be described as humanistic, and so moralistic. They are philosophies of restrained optimism, but they are melioristic in their attitude toward human life and social problems. This means that they entertain a theory of the possibility of human betterment through moral action as over against a common interpretation of causality, supposed to be scientific, which pictures measures of human uplift as futile gestures and morality as an empty dream—as idle as a painted ship upon a painted sea.

In drawing toward the close of the chapter, it should be helpful to hold a problem up for brief examination, a problem which too few have boldly faced and one which Russell (18) says may end by disrupting our civilization. The problem may be stated as follows: Can one entertain a

scientific conception of natural causation and consistently believe in freedom, morality, and humanitarian effort? If there is no freedom there can be nothing deserving the name of morality, and endeavors toward human uplift become illusory incidents in a vast complexity of cosmic weather. The problem should be faced by every educator who prides himself on the rationality of his outlook.

Trend Away from Scientific Determinism

The philosophy that underlies the notion of scientific determinism usually envisages a physical world composed of inert material objects related in a system of push and pull, attraction and repulsion, where man finds his place as one of the objects, possessed of a conscious life that accompanies events in his material organism as inertly as a shadow follows him in the sunshine. Essentially the same materialistic view colors the thought of one who believes in a universal "reign" of causal law.

This approach to the problem has rapidly lost ground among many of the distinguished thinkers of our time. In the first place, the conception of matter as an inert substance or as a substance of any kind is now widely discredited. Whitehead reflects the trend of modern thought in the view that there are no "vacuous entities." Moreover, human vassalage under a "reign of law" tends to disappear with the modern conception that science is descriptive rather than explanatory. The law of gravitation, for example, is descriptive in the sense that it merely expresses the spatial-temporal relations observed when bodies fall. To say that gravitation is the cause of the event observed is a prevalent and peculiar inversion of thought. A law of gravitation, expressed in mathematical form, is a description of the behavior of an entity in relation to another entity.

Whether the entity has the relative simplicity of an electron or the relative complexity of a human body, it can be conceived as an active organism possessing characteristic modes of behavior, modes of response to other entities. Science investigates these modes of behavior, but, ultimately, stands in baffled silence before the question, What explains the action? The behavior pattern dictates the law, not the law the behavior pattern. The present program of science is complete when the form of the entity and its reaction system have been mathematically described.

What Is Freedom of Conduct?

What is freedom in a world so constituted? In such a world the freedom of an entity seems to be satisfactorily defined as the absence of external determination. That is, one is free if not deterred by external circumstances from acting as one wills. This but reaffirms a conclusion previously published, with which the chapter may be brought to a close:

> To discover what hydrogen does in the presence of oxygen explains in no way the doing. The event is simply found by science and recorded *post rem*. Do atoms,

like the moon, shine from borrowed light? Are they mere unwinding clocks? What principle of rationality requires one to believe that energy is forever borrowed from elsewhere, or from some single pervasive source? The secret of that which is observed is hidden away in the elements themselves, for aught that science teaches. Thus are oxygen and hydrogen said to have certain ways of acting, certain modes of behavior. Refer to them as bonds, or affinities if you like. These are theirs, attributable, so far as known, to nothing elsewhere. And, if the simplest element conceivable reacts independently in the simplest way possible toward any other element, there is freedom of action. Freedom of action is freedom to act. It means the opportunity to act in accordance with one's nature, the opportunity to be oneself (5).

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CHAPTER V

Methods of Teaching

STEPHEN M. COREY and VIRGINIA MOOK

THE CONCEPT OF GENERAL METHODS OF TEACHING is so broad as to need empirical delimitation in any summary of research data. In one sense the teacher's method includes everything that he does in the classroom as well as the maintenance of many nonclassroom conditions that affect learning and over which the teacher has some control. Broadly conceived, part of the teacher's instructional method might involve his ability and willingness to regulate the amount of fresh air in the room. The term is not so broadly defined, however, in the pages that follow. They summarize the research reported within the past three years which has been concerned with evaluating the relative effectiveness of certain general procedures employed by teachers. The best practical definition of these general procedures or general methods is the following list of names that have been applied to various ones of them—the activity method, the case method, the conference plan, the demonstration method, the discussion method, the laboratory method, the lecture method, the problem method, the project method, the seminar method, supervised study, the unit plan, and the recitation method.

Each of these methods has been variously described. One of the chapters in this REVIEW is devoted entirely to a consideration of the "activity method." Consequently, the considerable body of literature in this area is omitted here. Inasmuch as any investigation of general methods always involves some particular instructional materials or subjectmatter, the line between "general" and "special" methods is a vague one.

During the three years 1939, 1940, and 1941, few research articles dealing with general methods were published. Under eighteen different headings in the *Education Index* there were forty titles so worded as to imply research, but of this total only fifteen reports actually involved scientific investigation. While there was a rather large number of titles such as "An Experiment with the Project Method," "An Experiment with the Laboratory Method," or "An Experiment with the Lecture-Demonstration Method," the word "experiment" was used loosely. Statistical data were not reported and the experimenters usually confined themselves to discussing the relative merits of the various methods and describing subjective impressions of effectiveness.

Classification and Use of Various General Methods

Monroe and Marks (12) classified the various general methods of teaching, as named previously, under the following headings: (a) the

lecture method, which consists primarily of extended discourse by the teacher supplemented by assignments; (b) the recitation method, involving an emphasis upon extended questioning of the pupils by the teacher; (c) object teaching, or the frequent use of concrete, tangible objects such as animals, plants, and colored cards, which pupils observe and study and about which the teacher asks questions; (d) the developmental or Socratic method; (e) the laboratory method, in which the classroom becomes a workshop furnished with the tools of living; (f) the project method, in which the pupil "purposes" to do something voluntarily or as the result of stimulation by the teacher and in which all the learning is related to this purpose; (g) the problem method, in which the teacher makes the assignment in terms of a problem and thus directs the situation; (h) the socialized recitation, which involves a considerable amount of teacher-pupil cooperation and extensive use of discussion technics; and (i) the Morrisonian unit-mastery procedure. This last is most commonly found at the secondary level and involves pretesting, teaching, testing the results of teaching, adapting the procedures, teaching and testing again to the point of actual mastery. Monroe and Marks agreed that the distinctions between these various methods were in many cases artificial and that during one class period a particular teacher often employs a variety of methods in order to attain a given end. Bumatay (1) circularized a large number of teachers in Texas elementary and high schools to find out the extent to which various methods were (reported as being) used.

The most extensive investigation of certain consequences resulting from use of the various general methods in high school was reported by Edmiston and Braddock (4). Pupil-attention was measured by trained observers using the procedure suggested by Morrison. The four methods which produced the best attention were, in order of efficiency: student reports, demonstration, pupil-dominated general discussion, and workbook.

Project Method

A committee appointed by the Progressive Education Association (14) generalized favorably upon results from sixteen research studies concerned with the relative effectiveness of "newer" methods of teaching involving numerous projects versus various other methods. Heaton and others (7) have shown that teachers who attend summer workshops in which the project type of learning is emphasized subsequently modify their instructional behavior markedly. There was a tendency for workshop participants to place greater emphasis than did other teachers upon the importance of changing their courses in order to make them better adapted to the present needs and interests of pupils.

Lecture, Demonstration, and Discussion Methods

Degering and Remmers (3) reported upon the relative effectiveness of individual laboratory work and the lecture-demonstration method in the

teaching of organic chemistry to home economics students. While the measuring technic employed was approximate and subjective, the authors found that the lecture-demonstration method was effective and they urged its adoption in view of the amount of money that would be saved in comparison with the individual laboratory method. A second investigation of the lecture-demonstration method versus the individualized laboratory method was conducted by Steen and James (15) and involved the teaching of physics. These authors reported that for high ability students the lecture-demonstration method was superior whereas students of lesser ability learned more effectively when they were given opportunity for individual laboratory experiences. A third study of the relative effectiveness of the lecture-demonstration and individual laboratory work was made by Elder (5) in chemistry. The research data included mostly statements of opinion by a large number of teachers, such as: "Do you believe that beginning chemistry can be taught effectively without individual laboratory work?" Sixteen percent of the respondents said "Yes" and 84 percent said "No."

Using the radio method of presentation, Lohmeyer and Ojemann (9) determined the relative effectiveness of three types of oral presentation for developing functional concepts and related attitudes. Sixth-grade children were used and the following three content areas: history, science, and literature. The three methods employed were (a) straight talk in the second person, (b) informal discussion using several voices, and (c) dramatization. The conclusions were that the talk and dramatization methods were significantly superior with respect to all types of subjectmatter and all groups of subjects.

Group Discussion

Miller (11) investigated the group discussion method in an advanced course in educational psychology. He recorded all responses for each discussant during twenty class meetings and then compared the five best students with the five poorest students in terms of the different types of comments made. As a result of his analysis, Miller recommended that in order for class discussions to be most effective, teachers should (a) encourage students to express the opinions that they already have on the problem under consideration, (b) encourage students to locate specific problems for discussion, and (c) provide opportunities for the interpretation and organization of newly acquired information. Zeleny (16) reported the results of a study of the effectiveness of the small group discussion method in sociology as compared with the more conventional large group discussion-recitation method. In the former, the larger groups were broken down into several small groups of five students each. All of Zeleny's differences were in favor of the small group procedure, but in only one out of approximately twenty cases was the difference statistically

significant. The students reported that they enjoyed studying sociology more when there was opportunity for small group discussions.

Unit Method

Ellwood (6) evaluated the unit-directed study procedure in the teaching of modern history in high-school classes. His method consisted of the following cycle: presentation, directed-study period, discussion, and a test. A control group was taught by the traditional recitation method and special tests were constructed to measure understandings, attitudes, interests, and skills. Despite the low critical ratios which resulted from the data, the author concluded that the unit-directed study procedure is apparently superior for developing understandings and skills, the recitation method is evidently better for developing attitudes, but no definite conclusions can be drawn as regards interests.

For a number of years Michener (10) has experimented with a modification of the Morrisonian unit plan. Thirty-three experiments were conducted in various types of schools, using subjects from the sixth-grade to the graduate level and involving material from numerous subjectmatter areas. Michener's plan includes the following five steps which he believes are not adequately emphasized by Morrison: group study, individualization, generalization, action, and evaluation. The author concludes that while his method is satisfactory in all grades, it seems especially well suited to social studies courses dealing with problems and in which the major objective is modification of behavior. The method is less successful when used in connection with units in which the major objectives are appreciations or the acquisition of skills. Michener warns that the method is useless in the hands of weak teachers.

Individualized Teaching

Olson and Kambly (13) investigated the relative effect of the following three types of teaching upon the learning of general science by ninth-grade pupils: (a) group instruction, during which the entire group usually engaged in the same activity; (b) individualized instruction, in which the teacher aided individual children and tried to differentiate suggestions in terms of their needs; and (c) a composite method, in which pupils went along on their own but received help when they requested it. These authors concluded that the method in which youngsters were given individual help whether or not they asked for it was most effective.

Inductive Method

Katona's monograph (8) does not deal directly with methods of teaching but his findings are of some pertinence to the topic. He conducted a long series of experiments involving the relative effectiveness of learning

by memorizing and learning by understanding. The latter usually involved induction and was defined as "the organization or reorganization of the given material by the learner." His experiments involved a great range of materials from tricks with cards and match sticks to an understanding of economic principles. His chief conclusion was that learning by understanding is superior to learning by memorizing if retention and transfer are the desired objectives.

Conclusions

A review of the research dealing with general methods of teaching might well conclude with a quotation from the *Encyclopedia of Educational Research* (2), "The experimental research relating to patterns of instruction is subject to a number of criticisms. The experimental factor is complex, in some cases curriculum reorganization being involved; the control of non-experimental factors, especially teacher skill, zeal, and enthusiasm, is seldom adequate; the measurement of the outcomes of instruction is rarely satisfactory; and the period of experimentation is usually not long enough for the pupils and teacher to become adjusted to a new method. Furthermore, all the patterns of instruction are not intended to serve the same functions. For example, the arguments advanced for the 'project method' emphasize outcomes that are not claimed for the 'recitation method' and the 'lecture method'" (p. 726).

The authors of this chapter in the REVIEW are of the opinion that the research in general methods during the period under consideration has not been fruitful. They are convinced further that the teaching situation is so complex that attempts to establish the relative superiority or inferiority of anything so amorphous as a "general method of teaching" are almost certain to be indecisive.

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CHAPTER VI

Radio and Records in Education

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TODAY NINE-TENTHS OF THE HOMES in the United States contain radios, but less than one-half of the schools of the nation have radios. Most pupils, even today, go through school without ever hearing broadcasts in the classroom. Radio is of value in American schools and classrooms in various ways:

1. Classroom listening to school broadcasts produced by network organizations, radio stations, state universities, and local school systems.
2. Classroom listening to educational records and transcriptions.
3. Classroom or auditorium listening to general broadcasts on the air during school hours, for example, speeches of the President or other public leaders, openings of Congress, symphony concerts, and news broadcasts.
4. The educational use in classrooms of programs broadcast during out-of-school hours.
5. Radio courses, units, or clubs in science, speech, dramatics, social studies, and other subjectmatter areas.
6. The presentation of school sponsored programs, usually with student performers, over local radio stations.

Literature Dealing with Radio [1]

To those interested in developing an understanding and an appreciation of the potentialities of radio as an educative medium, there are a number of excellent references. These may be divided into seven groups. In a first group are various books dealing with the writing and production of radio programs, as (7, 20, 79, 130, 152, 168). While such books are probably most valuable to high-school teachers directly concerned with radio workshops, they offer suggestions to all teachers interested in using the technics and methodology of radio in vivifying ordinary classroom procedures. A second group of references consists of radio dramas and radio discussions (15, 26, 27, 64, 83, 97, 98, 99, 150, 151, 166, 167). In addition to plays there are available printed transcripts of such series as "America's Town Meeting of the Air," "University of Chicago Round Table," "American Forum of the Air," and "Invitation to Learning."

The present world crises and the prominence of radio news analysts and commentators will undoubtedly increase the importance of a third category—that of the personal experiences and interpretations of radio journalists. Already a number of such books have been printed (57, 61, 92, 126, 127, 128, 129, 131, 138). In a fourth group are numerous books and

[1] Although this is the first general treatment of radio and education in the REVIEW there have been a number of sections on radio in connection with particular phases of education. Studies reviewed in these earlier discussions have been eliminated from the present chapter. For earlier treatments see the following: 11: 412, 453; 10: 13, 118, 215, 434; 8: 36, 44, 383; 7: 68; 6: 315, 489; 4: 470.

pamphlets which deal with the development of radio policies and practices in the United States, such as (16, 19, 37, 38, 46, 48, 66, 68, 93, 122, 123).

Fifth, there are publications of organizations devoted to the promotion of educational radio: the twelve yearbooks (1930-1941) of the Institute for Education by Radio, the five yearbooks (1931-1935) of the National Advisory Council on Radio in Education, and the three yearbooks (1936-1938) of the National Conference on Educational Broadcasting; pamphlets and documents of such organizations as the Federal Radio Education Committee (12, 39, 40, 41, 103, 104), the U. S. Office of Education, the National Advisory Council on Radio in Education (21), the Evaluation of School Broadcasts (76, 77, 90, 101, 107, 108, 110, 111, 112, 113, 114, 116, 117, 119, 124, 154, 155, 156, 160, 161, 162, 164), the School Broadcast Conference, and the Committee on Scientific Aids to Learning; and regular bulletins and newsletters of the Federal Radio Education Committee (42), the National Committee on Education by Radio (95), the Bureau of Educational Research (Ohio State University) (74), the Columbia Broadcasting System (24), the Mutual Broadcasting System, and the National Broadcasting Company (94).

In a sixth group are various magazines and magazine issues dealing with radio—the three trade journals, *Variety*, *Broadcasting*, and *Radio Daily* (106); the annual volumes, *Radio Annual* (106) and *Variety Radio Directory* (145); the miscellaneous "fan" magazines such as *Movie and Radio Guide* and *Radio Stars;* and the newly established journal of the Association for Education by Radio. Entire issues of several magazines have been devoted to the educational, psychological, and sociological aspects of radio (2, 35, 36, 59, 60, 102).

Seventh, there are various references devoted to the problems of using radio in school (10, 30, 41, 51, 54, 62, 65, 75, 96, 120, 159).

Research and Summaries of Research

During the last ten years there have been several hundred investigations dealing with the uses of radio in school and classroom. Unfortunately, many of these studies have been superficial, inconclusive, and uncoordinated with each other. Despite the excellent list of research problems suggested by Charters (21) in 1934, much of the research itself has been concerned with petty problems and has led to insignificant conclusions. Fortunately, however, during the last five years there have been three radio research projects, financed by the General Education Board and the Rockefeller Foundation, and two of them sponsored by the Federal Radio Education Committee of the Federal Communications Commission. The findings of these three research staffs—one at the University of Wisconsin, one at Ohio State University, one at Columbia University (formerly at Princeton)—have done much to answer questions puzzling broadcasters and educators.

In one of the best references on the methods of radio research, Lumley (78) examined with critical insight the research up to 1934. A year later Cantril and Allport (19) presented a series of investigations dealing with voice and personality, sex differences in radio voices, speaker versus loudspeaker, listening versus reading, and effective conditions for broadcasting. Wrightstone (165), with the assistance of the Evaluation of School Broadcasts staff, summarized the research up to 1939. Two issues of the *Journal of Applied Psychology*, February 1939 and December 1940 (59), both edited by Lazarsfeld and Stanton (69), presented research investigations completed during 1941. With so many investigations being carried on throughout the country, Beville and Daniel (12) suggested a classification of educational radio research.

Findings of the three radio research projects have been published as follows: Many of the investigations of the Columbia (formerly Princeton) Radio Project have been included in Lazarsfeld's discussion (68). The results of the Wisconsin study have been summarized in a report by Barr, Ewbank, and McCormick (8). At Ohio State University, the findings of the Evaluation of School Broadcasts staff have been published in mimeographed form in approximately fifty individual bulletins. The influence of these subsidized research projects upon graduate research is evident in the bibliography.

Radio and Sound Equipment in Schools

The first nationwide survey of radio and sound equipment in schools was made by Koon and Noble (63) in 1936. These investigators, in a survey of 82,297 schools, found only fourteen radio sets per one hundred schools and only one school in a hundred with a central radio sound system. Phonographs were more common, there being forty-six phonographs per hundred schools with, however, an average of only nine records per school. Equipment was found most frequently in the schools of New Jersey, Ohio, Delaware, Connecticut, and Massachusetts. Two years later, in 1938, Stanton (134), in a survey of 11,169 school teachers throughout the country, reported that 36.4 percent of the respondents had classroom radio facilities. Not satisfied with the representativeness of the respondents, Stanton sent out a follow-up questionnaire to nonrespondents and found that only 23.8 percent of the respondents to this second questionnaire had classroom radios. He concluded, "It is reasonable to assume an even lower percentage of ownership among the remainder of the sample from whom no replies were ever received."

A survey of members of the Departments of Elementary and Secondary-School Principals of the NEA, made by Reid (108) in 1939, showed that radios were available in 77 percent of the elementary schools and in 61 percent of the secondary schools. Probably the most reliable and comprehensive survey of radio equipment in schools is the one of Ohio made in 1941 by the Evaluation of School Broadcasts staff and reported by Reid

(114). Replies were received from 2,348 Ohio schools and data gathered so that replies of nonrespondents could be estimated accurately. The survey covered all public schools in the state—rural and urban, elementary and secondary, one-room and consolidated. Fifty-five percent of the schools reported having radios; 12 percent had central radio sound systems; 37 percent had record playing equipment. Other surveys of states have been made in Maryland by Barnes (6) and in Iowa by Denger (33).

In the survey of Ohio schools (114), principals reported these uses of central sound systems: reception of radio programs for classroom listening, broadcasting of administrative announcements, broadcasting of talks and speeches, and broadcasting of student dramatizations. In master's theses, Haynes (53) and Rudy (125) discussed the school uses made of sound equipment. In another thesis, Young (169) described the procedure, step by step, of installing sound equipment in a school. Probably the best discussions of equipment are the ones by Lowdermilk (74, 75, 77) in which he explained the actual and potential uses of radio sound systems and of transcription players, and the report by Hogan and Wilmotte (56) dealing primarily with the cost of auditory aids in the classroom.

What's on the Air?

There are in the United States three types of school broadcasts distinguishable by their geographical scope or coverage: (a) broadcasts of the radio networks available to schools in most states from coast to coast; (b) programs broadcast over a single station or a regional network of stations to schools in a single state or geographical region; and (c) broadcasts originating in individual cities and intended for classroom consumption in local schools. Most of this broadcasting is done by commercial stations rather than by educational stations. From 1921 to 1936, according to Frost (45), there were 202 licenses granted to educational radio stations. Of these 202 licenses, 164 were allowed to expire, were transferred, or were revoked so that on January 1, 1937, there were only 38 broadcasting licenses held by educational institutions.

There has been comparatively little descriptive and analytical research dealing with the school broadcasts of the Columbia Broadcasting System, the Mutual Broadcasting System, and the National Broadcasting Company. Probably the best descriptive analyses of network school broadcasts are those of Reid (107, 109, 111, 112, 116), Robbins (119), and Wiebe (154), who studied the five 1940-1941 series of the CBS "American School of the Air." From these studies they concluded that the broadcasts were generally and sometimes extremely valuable educational experiences, but that throughout the series there were numerous curriculum defects and deficiencies. They made these recommendations: (a) that responsibility for a nationwide school of the air be vested in an educational organization rather than in a commercial organization; (b) that the planning of the radio series be delegated to specialists in public-school curriculums;

(c) that network broadcasts be focused upon broad areas of knowledge and cut across traditional subjectmatter boundaries; (d) that broadcasts be construed in terms of the unique educational advantages of radio; (e) that all individuals responsible for the planning and producing of school broadcasts have a knowledge of classroom conditions; (f) that printed aids to accompany broadcasts be accurate and specific; and (g) that a continuous program of evaluation be carried on during a broadcast series.

In master's theses, Hayden (52), McHugh (80), Smith (133), Swinebroad (137), Taylor (140), and Wolf (163) gave partial descriptions of the broadcasting activities of radio stations, universities, and local school systems. In the most extensive survey yet made, Atkinson (3, 4) described radio education in 126 American cities. Darrow (29) sketched the history of school broadcasts. Darrow (31) also traced the development of the "Ohio School of the Air" which he founded in 1930. The story of the "Wisconsin School of the Air" has been told by Bartel (9) and in the report of the Wisconsin research project (8).

Criteria for Judging School Broadcasts

After a year's experience in listening to school broadcasts, Reid and Woelfel (117) listed a series of criteria under three general headings: educational value, clarity and comprehensibility, and interest and appeal to classroom listeners. In evaluating the 1940-1941 series of the "American School of the Air," Reid (107, 112, 116), Robbins (119), and Wiebe (154) used these criteria. In an appraisal of an NBC series, O'Steen and Miles (101) used similar standards, but in an evaluation of sixty school broadcasts submitted in the Fourth Exhibition of Recordings of Educational Radio Programs, Miles (90) developed four criteria: (a) appropriateness of the material to radio presentation, (b) relevance of the material to the experiences of listeners, (c) emphasis upon the social aspects of the subject being treated, and (d) stimulus to further activity by the listeners. In two studies, one of the Damrosch music appreciation programs and the other of thirty educational music broadcasts, Wiebe (155, 156) developed seven criteria specifically applicable to music broadcasts. Bird (13) used fourteen criteria for judging broadcasts used in the classroom and eleven standards for educational broadcasts intended for home use. Rowland, Tyler, and Woelfel (124) used three categories in discussing specific standards for children's radio programs: social ideals of American life, personality development of the child, and showmanship or entertainment quality of the program.

Upon the basis of teachers' appraisals of the 1940-1941 "American School of the Air" series, members of the Evaluation of School Broadcasts staff (111, 120, 154) recommended that a school broadcast should be comprehensible to listeners in all grades for which it is intended; that the material be related to the experiences of students; that the content

be organized into a simple and coherent structure; that a consistent pattern of presentation be followed from week to week; that there be comparatively few scenes, episodes, and characters; that sudden shifts in time or place be avoided; that the vocabulary be understandable to classroom listeners; that dialect be used seldom or not at all; that sound effects be used judiciously and sparingly; that voice fading as a transition technic be avoided; that appropriate humorous dialog and situations be used; and that the programs be dramatized.

Kinds of Radio Programs and Their Effectiveness

Lumley (78) classified radio broadcasts into six categories: (a) radio lessons with a radio teacher taking the place of the regular classroom teacher; (b) radio talks; (c) recitations or readings; (d) interviews, debates, and forums; (e) dramatizations; and (f) musical programs with supplementary comments. There is no conclusive evidence concerning the relative effectiveness of these methods, although classroom listeners seem to prefer dramatization. Lohmeyer and Ojemann (72) used three types of presentation (drama, talk, and discussion) with three types of broadcast material (history, science, and literature) and reported that in the acquisition of information the drama and the talk were superior to the discussion, but that in the influence upon attitudes there was no difference between the three methods of presentation. Willis (158) found dramatization most effective and talk least effective. With a group of twelfth-year students, Howell (58) compared a roundtable and a forum presentation; with the roundtable discussion there was a greater gain in information but there was no difference between the opinion changes recorded in the two groups. Using an information test as the criterion, Webster (148) found no difference in the effectiveness of a talk and a drama dealing with historical characters.

As for the rate of speech, Lumley (78) recommended that broadcasts for school children be spoken more slowly than broadcasts for adults (a fact sometimes forgotten by educational broadcasters). Cantril and Allport (19) found that radio talks are more comprehensible and interesting if delivered at relatively low rates of speed, and recommended the following limits:

Theoretical material	110-130 words per minute
Factual exposition	120-140 words per minute
Directions	90-115 words per minute
News	120-140 words per minute
Narrative	120-150 words per minute

Cantril and Allport (19) also reported that talks should be from ten to twenty minutes in length; that specific illustrations aid in the understanding of an idea; that the use of short sentences helps in the presentation of factual material; and that most listeners prefer male announcers to female

announcers. Smith (132) reported that the speed of delivery depends upon the type of listeners and the length of the broadcast.

Who Listens to School Broadcasts?

Only a partial answer can be given to this question. In 1938 Frank Stanton, director of research, Columbia Broadcasting System, made a nationwide survey of school listeners to network broadcasts, but the data have remained in the files of CBS. From a survey in 1940 of 1,160 members of the Departments of Elementary and Secondary-School Principals, Reid (108) reported these data for the "better" schools of the country: CBS broadcasts used in 38 percent of the elementary schools, in 16 percent of the secondary schools; NBC broadcasts used in 34 percent of the elementary schools, in 17 percent of the secondary schools; "Damrosch Music Appreciation Hour" with the largest audience, 6 percent of the elementary teachers and 1 percent of the secondary teachers; all series, even those intended for high-school students, with larger audiences in the elementary than in the secondary schools.

From a comprehensive survey of all schools of Ohio, one of the most advanced states in the educational use of radio, Reid (114) reported these findings: school broadcasts used in 15 percent of Ohio schools, in 8 percent of the rural and 32 percent of the urban schools, in 16 percent of the elementary and 12 percent of the secondary schools, in only 2 percent of the one-room schools; CBS broadcasts used in 7 percent of Ohio schools, NBC broadcasts in 6 percent, "Ohio School of the Air" broadcasts in 6 percent, and local broadcasts in 7 percent of Ohio schools; "Damrosch Music Appreciation Hour" with the largest classroom audience, but no series with an audience greater than 2 percent of Ohio teachers and students; all series, even those planned for secondary-school students, used more often in elementary than in secondary-school classrooms; classroom listening greatest in urban areas close to radio stations, particularly in Akron, Cleveland, Toledo, and Zanesville.

How Teachers Use School Broadcasts

Questionnaire and observation data indicate that teachers ordinarily use school broadcasts as curriculum material supplementary to the course of study. The teachers' manuals and classroom guides prepared to accompany broadcasts seem to be based upon this supplementary nature of radio programs. One interesting exception was that of the CBS "New Horizons" series during 1941-1942. Mr. Adamson (1), the scriptwriter, prepared a textbook, *Land of New World Neighbors*, published by the McGraw-Hill Book Co., to be used in conjunction with the broadcasts. Woelfel and Wiles (162) found that skilled teachers spent some time before the broadcast in checking mechanical arrangements, discussing the subject of the broadcast, and otherwise preparing students for what

they were about to hear; that during the broadcast teachers listened as members of the audience; that half of the teachers encouraged note-taking; that following the broadcast students reviewed the content and discussed the production of the program. Reid (110) reported that the teachers spent approximately an hour a week in using a series of social studies radio programs—eight minutes before the broadcast, thirty minutes listening, and twenty minutes following the broadcast. Woelfel and Robbins (161) reported that all classes in a junior high school listened each Friday to a series of social studies broadcasts, with sufficient time before and after the radio program to allow for discussion. Both the teachers and the investigators believed that the educational values far outweighed the inconveniences of this schoolwide use of radio.

Experimental Comparisons of Radio and Nonradio Learning

By and large, studies of "radio" and "control" groups have been inconclusive, except to show that educational changes can result from radio listening as well as from other classroom procedures. The final report of the Wisconsin studies (8:194) stated: "In general the experimental studies carried on as a part of this investigation yielded decidedly mixed results. The comparisons consistently favored the radio groups only in the field of music, and even here several of the differences were not large enough to be statistically significant." In the acquisition of information, Wiles (157) reported that a group of junior high-school students learned more from listening to a series of news broadcasts than did a comparable group of students who studied current events in the classroom. Miles (88) reported in favor of the radio group. On the other hand, Baker (5), Cook (25), and Mueller (91) found no significant differences in the amount of information acquired by radio and nonradio pupils, and Loder (71) reported results favoring the presentation of material directly rather than through a loud speaker.

With attitudes as with information, the research evidence is inconclusive. Davis and Nichols (32) reported that broadcasts designed to influence attitudes of pupils toward Japanese increased the variability of their beliefs. Lumley (78), Miles (88), Wiles (157), and Reid (110) studied the effects of broadcasts on attitudes, with varying results. Lowdermilk (73, 100) used both recordings and printed versions of the recordings to check the relative effectiveness of listening and reading in influencing pupils' attitudes toward the rights of freedom of speech and of assembly. He found that reading was more effective than listening, but that reading the script while listening to the recording seemed more valuable than reading alone. Of six studies (28, 88, 91, 115, 149, 157) dealing with the effect of school broadcasts upon pupil interests, only one showed a significant increase in interest concurrent with the radio listening. After careful study of these

various "controlled" studies, one must conclude that they add little to educational knowledge or to educational research. In many of them, the hypotheses were not formulated precisely, the experimental factor and other influential factors were not rigidly controlled, the validity and reliability of the experimental criteria were not established, the groups of subjects were not adequately equated, and the statistical technics were not carefully chosen.

Comparisons of Comprehension by Aural and Visual Means

Cohen (23) worked with several hundred public-school children in New York City and found the results of reading versus listening to ten factual stories were inconclusive. Goldstein (47), using groups of adults as subjects, presented in two ways and at seven rates of speed passages from the McCall-Crabbs Standard Test Lessons in Reading. He concluded that listening comprehension was greater than reading comprehension. Goldstein recognized the artificiality of his experimental situation, especially that of reading passages projected upon a screen rather than from a magazine or a book. School children, more habituated to reading, cannot be assumed to learn more easily by ear than by eye. One finding of Goldstein's has important implications for educators, namely, that there is extreme variability in individuals' listening comprehension. Teachers can no more assume that all students listening to a broadcast understand what they hear than they can assume that all students who read a book understand what they read.

Finally, there are Lazarsfeld's insights (68) into the problem, substantiated by numerous research studies conducted under his direction. In general, he found that the lower the cultural level of listeners, the more they listen to the radio; the lower the cultural level of people, the more likely they are to prefer listening to reading; the higher the reading skill of a certain group, the more they prefer to read than to listen to comparable information; and the greater the interest in given subjectmatter, the more strongly will people prefer the medium which gives the fuller treatment. For example, the more interested people were in current events the more they preferred newspapers to radio as a source of news, but the more interested they were in baseball, the more they preferred radio to newspapers as their source. Of the controversy concerning "eye versus ear" learning, Lazarsfeld pointed out that "for every study which shows that the ear is more receptive, another study can be quoted which attributes the same advantage to the eye. The truth seems to be that the physiological means of perception is of itself of only small importance in the communication of ideas; what counts is the situation in which communication occurs—the reading and listening habits of the respondent and the character of the subjectmatter in question" (68, p. 199).

Transcriptions of Radio Programs

One of the phenomenal developments in educational materials during the last few years has been that of records and transcriptions. Commercial organizations, the U. S. Office of Education, and radio stations and radio networks have released transcribed programs and series of programs for classroom consumption. Some of these recorded programs are ten- and twelve-inch records which can be played at a speed of 78 rpm (revolutions per minute) on any phonograph; others are twelve- and sixteen-inch transcriptions which must be played on special machines which turn at a speed of 33⅓ rpm. As Miles (87) has pointed out, the use of these auditory aids is becoming more and more important in American schools. Many of the studies mentioned in the preceding section have been made with transcriptions of broadcasts rather than "live" broadcasts as the experimental stimulus. Recordings available to schools were surveyed and appraised by Miles (87, 89). Lowdermilk (76) noted that since transcriptions can be played whenever it is most convenient and as many times as educationally necessary, they are superior to "live" broadcasts. The controversy between "live" and "recorded" broadcasts was investigated by Wrightstone (164), who found no differences in the learning effects upon comparable groups of pupils listening to broadcasts and transcriptions of the identical broadcasts.

Radio Workshops and Pupil Broadcasting

From the 1941 survey of Ohio schools, Reid (114) reported that 3 percent of the schools of the state had radio workshops, that most of these workshops were in secondary schools, and that there were approximately forty students in a group. On the other hand, pupils in 13 percent of Ohio schools took part at one time or another during the year in presenting radio programs over local stations—from participating in a band concert to taking part in an amateur contest. From a survey of eighty-nine large Illinois high schools, Purkey (105) reported that half of the schools had presented student broadcasts during 1937-38; that the music, speech, and English departments were principally responsible for preparing and presenting the broadcasts; that the three most important purposes of student broadcasting were (a) giving students experience in radio broadcasting, (b) presenting to others an actual classroom activity, and (c) interpreting school policies to the public. Pupils are often used in the production of local school broadcasts. Walters (146) described the process followed by sixth-grade children and teachers in the preparation of 24 fifteen-minute news programs. Scripts available for high-school broadcasting were analyzed by Byers (18) and evaluated upon ten criteria.

Various aspects of the production and presentation of radio programs have been analyzed in master's theses: newscasts by Edmonson (34), radio

plays by Buss (17), and voice training by Hale (50). Of more importance to one interested in technics, however, are the books on script writing and radio production written by experienced radio broadcasters, particularly those by Carlile (20), McGill (79), and Wylie (168). As for the requirements necessary for radio personnel, Levenson's investigation (70) is the most exhaustive in the field.

Radio Courses and Units in Public Schools

In 1941, approximately 15 percent of Ohio schools had radio units or courses, most of them in the fields of science and mathematics (114). One of the unique curriculum developments in radio has been that of the tenth-grade English course of study (121) in Rochester, New York. The literature, speech, and composition activities of the second-semester course are focused upon radio. With the cooperation of Rochester teachers, Reid (113) made an evaluation of the course. Stenius (135) described an experimental course in radio offered in Detroit Western High School. In master's theses, Blecker (14) and Foltz (44) discussed some of the possibilities of using radio in the classroom. Power (104) described a course in radio speech included in the high-school curriculum of Texas. Of interest to curriculum constructors are: an analysis of occupations in radio by Bartlett and Miller (11), an investigation of the objectives and content of radio speech courses by Lawton (67), and an analysis of the training and characteristics desirable in radio personnel by Levenson (70).

Curriculum Use of Out-of-School Broadcasts

A 1941 survey of Ohio schools (114) indicated that in 78 percent of the schools one or more teachers gave some attention to pupils' out-of-school radio listening, principally through occasional recommendations to listen to specific programs. In only 4 percent of the schools were there teachers who assigned radio listening, thus placing the activity upon an equal footing academically with that of out-of-school assigned reading. Reid (113) described some of the ways in which Rochester, New York, teachers made use of evening radio broadcasts. Lowdermilk (76) made an interesting study of the curriculum use of "America's Town Meeting of the Air" broadcasts. High-school students in thirty-two classes throughout the country listened to the programs at home, then spent the following day discussing the issues in class.

Radio program discrimination—Radio has grown so rapidly that few educators have seriously considered their responsibilities in developing discrimination in radio listeners. Tyler (142) presented the case for teaching radio discrimination and suggested that it probably belonged in the English area. The possibility of teaching discrimination has been studied, with varying results, by Merrill (85), Goudy (49), Heskett (55), and Robbins (118).

Conclusion

Such has been the research of the past few years dealing with radio in the schools and classrooms of the United States. Despite the mediocre quality of some of the studies, despite the insignificance of some of the findings, despite the lack of coordination between investigators and between investigations, a synthesis of the field permits four generalizations: (a) that there are on the air today many broadcasts highly enjoyable and educationally valuable to pupils and teachers alike; (b) that comparatively few teachers use this curriculum resource made available through technological progress; (c) that radio broadcasts, like motion pictures, books, magazines, and other teaching aids, can be used effectively in the achievement of educational objectives; and (d) that the possibilities of radio—as a medium of communication, as an agency of education, as a form of art and literature—have only been touched as yet in the public schools.

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CHAPTER VII

The Library in Education

HELEN L. BUTLER

RESEARCH IN LIBRARIANSHIP is a recent development. Until perhaps fifteen or twenty years ago library investigation consisted largely of enumerative bibliographies and small-scale service studies of local institutions. Since that time, however, the output has increased from a small trickle to a fair-sized stream marked by clarity and force. Whole areas still remain untouched by investigation, but where work has been attempted a scientific beginning at least has resulted.

Research in Librarianship: Bibliographies

Bibliographies of research necessarily remain limited. Waples (82) listed the theses of students in the graduate library schools of the nation. Witmer (93) extended the source by drawing off dissertations embodying the work of both education- and library-school students, but limited the area to studies of the secondary-school library. Heaps (30) supplemented her list for the years 1936-39. Carnovsky (12) restricted his choice to thirty-five works he considered progress-making and definitive. No bibliography is known to the present writer which cuts across elementary-, secondary-, college-, and public-library fields, in terms of education. No institution or agency has yet undertaken the systematic collection or abstracting of published and unpublished studies in the library field.

Philosophy and Objectives of the Library in Education

Two articles by Wilson (94, 95) called attention to the direction library service should take in college and university and to the essential factors which make for productive relations between students, faculty, and books. Branscomb (10), after a year's study at the request of the Association of American Colleges, emphasized educational effectiveness and urged that libraries be encouraged to develop plans in which the book collection might emerge as an instructional tool of first importance.

On the secondary level, Ditzion (20, 21) related the origin and development of school libraries to the work and philosophy of such leaders as Dix, Torrey, Mann, and Bernard, and paralleled library progress with educational advancement. In New Jersey (62) librarians from 165 junior and senior high schools recorded their opinions concerning the role of the library as a school activity. Most important, in the order named, were (a) teaching the use of books and libraries, (b) directing pupil leisure reading, (c) assisting instruction, (d) adjusting library service to chang-

ing class content, and (e) establishing an atmosphere of democratic cooperation. In actual practice they acknowledged the first of these to be last. The most succinct expression of the philosophy of the school library is found in the brief preliminary statement of the circular issued by the American Association of School Administrators in conjunction with the Research Division of the NEA (3). Here the library was conceived to be at once a service agency, teaching agency, book center, and reading center.

Evaluation of Library Service

Early attempts at evaluation by state departments, accrediting bodies, and local school authorities resulted, according to Spain (76), in quantitative measurements of book stock, seating capacity, and other enumerative items, which not only failed in their purpose but eventually stultified library growth. In 1936, accordingly, Waples (88) published at the request of the North Central Association his basis for the determination of qualitative standards for the college library. He recommended four devices: (a) an information schedule showing funds, methods, and policies of book collection; (b) a checklist of general reference books; (c) a checklist of periodicals; and (d) a reading record for each student and faculty member. A year later there began to appear in print some of the preliminary findings of the Cooperative Study of Secondary School Standards. From these and other data were evolved criteria (16) for evaluating the high-school library in terms of the philosophy of the school of which it is a part, of the nature of the pupils it serves, and of the community in which it is set. The rating included eight phases (Schedule F): library staff, organization and administration, book stock, magazines and special materials, book selection policy, teacher and pupil use, service policy, and adjustment to the objectives of its own school. This is the fullest and most satisfactory set of criteria yet worked out, and should prove a means of estimating not only the relative standing of a given library but also its improvement and growth over a period of years.

Library Surveys

Joeckel (35) reported to the Advisory Committee on Education on library service of all types including, briefly, public libraries, school, college, and university libraries, and, more fully, federal library service. Many of his deductions were based on conditions cited in Wilson's earlier work (92) which had pointed out the percentages of population which received library service in the states; the small number of counties which had complete public library service, and the large number (40 percent) which had none; and the location of the 45,000,000 citizens who had no access to libraries of any kind. An early publication of the U. S. Office of Education (36) presented Johnson's examination of the staff, administration, and facilities of 390 secondary-school libraries. Of the schools

described, sixty-seven had no seating capacity whatever for their pupils and thirteen used no classification system for their books.

Excellent surveys of school-library conditions have been made in two states. From information reported by the schools, California (11) evaluated approximately five hundred public-school libraries. The data permitted comparisons to be drawn on many points with conditions in other states. The Regents' Inquiry of New York State centered attention chiefly on the contribution made to the reading program of the state. Thus Waples and Carnovsky (87) found that in two superior communities the quality of high-school students' reading was better than that of their parents and approached that of their teachers; that the library's educational value had a positive relationship to funds available; that the richest returns came when school and public library cooperate; and that the existing method of distributing state aid to public libraries needed revision. Smith (73) found that elementary-school pupils of New York State were somewhat below national norms in knowledge of literature; that teachers were book conscious but limited in book knowledge and book sources; and that some of the smaller communities most poorly supplied failed to take advantage of the state traveling library.

Cooperation between Library Systems

Attempts have been made in some regions to rectify the substandard conditions resulting from inadequate financial support and lack of administrative vision by resorting to state aid and state supervision of school libraries. Permissive and mandatory legislation in this respect has been collected and analyzed by Lathrop (44). The effects of such supervision upon growth and organization have been studied by Gaver (28), Wofford (100), Barbor (6), and Hoyle (32) for certain southern states; by Churchill (15) for Illinois; by Lane (43) for New Jersey; and by Skaar (72) for Wisconsin.

Investigators have deprecated the overlapping of function and service between public- and school-library systems and have made various proposals intended to spread books more widely and with greater economy than now exists. Joeckel (35), for example, called attention to the competitive aspect of respective services. The Educational Policies Commission (60) proposed the ultimate unification of all educational activities (including public libraries) within each community under the public education authority and, until this could be brought about, suggested contractual agreements between public and school libraries. Cecil and Heaps (14) analyzed carefully various participatory schemes of service in state, county, regional, and local cooperative units, and described costs and activities in sixty-seven cities where such cooperation is in effect. They recommended full responsibility for library service by the schoolboard, accompanied by cooperation with other library agencies at all times.

So, too, a Joint Committee of the NEA and the ALA (61), evidently fearful of the loss which too-sweeping changes in school-library policy might entail, was emphatic in its declaration that the place for a school library is in the school. From practices reported in thirty-five selected communities, the Committee presented a detailed account of the activities and procedures which illustrate acceptable working relationships between school and public library. School administrators may find help in the comparative figures published by the American Association of School Administrators (3).

Library Organization and Management

Research in the field of internal management is progressing rapidly. In 1932 Allez (1) made a time-study of the activities of librarians in eight Wisconsin teachers colleges, noting the number of hours per week professional and clerical staff members said they spent on administrative, technical, routine, clerical, service, and "professional" activities. The findings were somewhat weakened by the fact that there was little agreement in definition of terms. Crookston (17) found the direct labor costs of services for 542 professional, clerical, and student staff members in eleven high-school libraries which ranked high by the standards of the Cooperative Study of Secondary School Standards. She computed the unit costs of reference, teaching, advisory, circulating, cataloging, and other services. The mean cost of acquiring a book in ten libraries was found to be 2.6 minutes, or 31 cents; circulating the volume required the same time but only 2 cents. Most expensive of the library's tasks was the preparation of a bibliography which took 98 minutes and cost $1.59. Other studies in internal management include (a) the formula worked out by Axe (5) for making book-fund apportionments in Los Angeles schools based on the average cost per book in high schools, and upon the average use per pupil-period in the social studies; (b) the cost of acquiring and cataloging a college book collection investigated by Miller (55); (c) the efficiency of separate library rooms versus the study-hall combination in Louisiana by Robert (69); (d) steps in the organization of centralized library service for New York rural schools by Rimkus (68); and (e) comparison of the professional and academic training received by secondary-school teachers and by librarians by Alstetter (2).

Adequacy of the Book Collection

The field most commonly investigated is that of the book collection, to determine quantity and quality, and/or to ascertain its use by the library's clientele. Customary procedures consist of checking the number and distribution of the titles against subject fields covered, inclusion on accepted lists, date of publication, and size of classes or enrolment. In elementary schools, grade placement also is often considered. Most

complete in data collected was the Missouri study (101) made for the Committee of the Cooperative Study of Secondary School Standards, which obtained figures for the number of titles, of duplicate copies, of social science and natural science works published within ten years, of magazines subscribed for from a recommended and weighted list, and of the supplementary materials such as slides, films, pamphlets, and records. California (11) reported by level of school and size of enrolment the frequencies of possession of standard reference works, of recommended magazines, of professional books for the librarians' use, of newspaper subscriptions, and the percentage of books in each major classification. On the university level, Raney (65) checked some four hundred subject bibliographies against the holdings of the University of Chicago libraries and formulated his acquisition policy and needs upon the weaknesses so revealed. Bariani (7) took into consideration not only the book-spread according to publication date and subject distribution but ascertained curriculum strength by relating the titles to those in authoritative bibliographies, to course assignments and needs in her school, and to availability elsewhere on campus. These studies may be contrasted with that of the Bibliographical Planning Committee of the University of Pennsylvania (9) which, proceeding on the conviction that the adequacy of a collection is best judged by the faculty who use it, inspected the University's libraries department by department and shelf by shelf, and found the results good. A contrast is also found in the methods employed by Westervelt (89) who cumulated from various sources a standard juvenile book collection for New York normal schools. Martin (53) synthesized the findings of seven studies of periodicals, consulted widely, and prepared a descriptive list of one hundred selected periodicals for high-school use.

Reading and Library Use

Probably no phase of the library in education has received so much attention or ranged so widely from scientific observation to incautious generalization as has library use. Reports vary from citation of total circulation figures to detailed distributions assigned to factors believed causal or relative. Most of the studies in children's reading tie back in one way or another to Terman's early study (79), and demonstrate the soundness of his deductions on the influence of intelligence, age, and sex on juvenile reading. Lazar (46), investigating the reading interests of 2,027 New York City pupils, found that the bright pupils read more than the average or dull; that girls read more books than boys; and that while the girls who read boys' books were usually bright pupils, the boys mentioning girls' books were dull. Availability of suitable reading materials was stressed by Stribley (78) who inspected nineteen rural schools in an Iowa county. The appalling conditions brought out in his analysis of the collections were reflected in the pupils' reading, only 6 percent of which was on a standard list and 14 percent of which consisted of "Big-Little

Books." A correlation coefficient of +.72 between total books read and number of books read from the school library was thought significant evidence that the children were reading what was at hand. In 1930 Lewerenz (47) found that the higher the IQ level of Los Angeles schools, the greater the representation among public library users.

The effect that skilful instruction and a free-reading program may have in improving reading habits was demonstrated by La Brant and Heller (41), who through individual suggestions and formal class discussion were able to extend both the quantity and quality of reading done by two groups of students in the Ohio State University School over a period of three years. The writers reported marked sex differences. From records for 112 pupils, varying from one to six years, in the Bronxville, New York, high school, Eberhart (23) concluded that the seventh grade is the period of widest reading, but that, although reading in senior high school is less voluminous, the proportion of nonfiction read is almost four times as great, and the fiction reading is more mature. The negative results obtained when guidance is lacking are implied in the study by Lawshe (45) who found that pupils read no more after free reading had been introduced than when reading was prescribed; that marked decreases in biography and travel had occurred; and that fiction, some of inferior quality, had increased.

The problem of the nonreader has long interested librarians. Linderman (48) studied sixty-five nonusers of the high-school library and found that they came largely from nonreading homes; they had not been read to or otherwise stimulated to read when small children; they belonged to no out-of-school clubs and took less interest in the school's extracurriculum activities than did their classmates. Though their average IQ was only 3.4 points lower than the average for the school, 45 percent of this group was receiving failing grades. As a partial explanation of differences observed in reading habits, Moreland (57), Zeller (102), and Thorndike (81) attempted to determine basic interest patterns rather than actual reading preferences. After examining the responses of 2,891 bright, average, and dull pupils to 88 annotated fictitious titles, Thorndike concluded that sex is the most important determinant of interest, and that within the same sex bright children are most like slow children who are two to three years older. His findings should interest teachers and librarians responsible for reading-guidance programs.

Waples and others (86) synthesized the literature on social effects of reading and enumerated motives which send people to books, described the values they find in them, and hypothesized the effect that books share with personality in modifying social behavior.

An overview of college and university library use may be obtained from the articles by White (90) and Smith (74). Much additional information is available in general college surveys and in the report of the evaluation study by Waples (88). Many of these are ably summarized by Branscomb

(10). Results are not always comparable due to variations in local record-keeping and in open-shelf policies. Among more recent studies may be cited those by Thompson and Nicholson (80) and by Stieg (77) whose findings largely confirm earlier investigations in respect to mean circulation per student and subject fields most in demand. Engleman (25) rejected reserved books from her consideration in an attempt to discover the responsibility for and success of the general reading program in seventy-nine liberal arts colleges. She showed that general reading, as contrasted with reserves, had increased slightly over a five-year period; that less than one-fourth of the institutions had studied their students' reading intensively, and only seven had applied the results to their book-selection policy. Lancaster (42) found little correspondence between actual library use and the amount of instruction given.

Teaching the Use of Books and Libraries

Instruction in books and libraries is postulated in every statement of objectives for library service, on all levels. The general surveys show that most libraries make some provision for such instruction, either informally by lectures and tours during orientation week or in formal courses both with and without academic credit attached. Many textbooks and manuals have been written for such instruction but of actual research there is little. Two studies are outstanding. Reed (66) constructed a test on three levels—elementary, secondary, and college—and carefully checked it for comprehensiveness, validity, and reliability. She found that the three levels made clean-cut distinctions with 3,345 students in fourteen institutions. Dear (19) administered the Peabody Library Information Test (71) to 1,322 college students in nine colleges under classroom conditions and found it capable of discriminating between classes of different levels and between classes of the same level in different colleges. Using the elementary-school form of this test, Moore (56) found a satisfactory correlation between library skills and educational age, mental age, and achievement for 130 children but found no definite relationship with general reading performance as shown by the number of books they read. Probably no phase of the library-in-the-school needs further light shed on it than this one.

The Library and Adult Education

None of the foregoing researches pertain directly to the library in out-of-school, or leisure, education, but many of them include data which could be drawn off for the purpose (35, 86, 92). There are other studies of public library use in particular communities (cf. 12, 29, 39, 67, 84) which determine the percentage of population using or not using the library; the number of books borrowed; the education, sex, and occupation of the borrowers; and the subjects and quality of the materials bor-

rowed. Unfortunately, the records also include books circulated to students in neighboring schools. Morriss (58), however, limited her observations to a small group of adults whose elementary-school education had been neglected. She advanced certain book-selection criteria and a short list of books meeting these standards. Egan (24) investigated the reading of young men enrolled in CCC camps and reported good results from personal advisory service. Flexner and Hopkins (26) analyzed the records of 1,250 persons, or 20 percent of the total number, who had asked help of the readers' adviser in the New York Public Library. The purpose, subjects, and extent of their reading were related to sex, education, age, and occupation. General statements of opinion on adult reading are expressed in the papers edited by Wilson (93) and in the more comprehensive list of works compiled by Beals and Brody (8).

Some Areas for Further Research

Many gaps in our knowledge of the part played by the library in education call for further study. We should like to know more about the elementary-school library: what its particular functions and performance under optimum conditions are, as distinguished from those of the secondary-school library; how to evaluate it in its own setting; the efficiency of the teacher-librarian in contrast with the full-time librarian, and the point of diminishing returns for each. High-school principals and librarians would welcome convincing proof of the effectiveness of the study-hall combination over the separate library room, and the circumstances under which this is true. For libraries of all levels information is needed on the relation of library costs to those of other units, that is, subject fields, laboratory subjects, gymnasium and health programs, and all special curriculum fields. Especially do we need more light on the nonreader, on his characteristics and whatever might explain the fact that the student who reads widely tends also to stand high in his classes. For the community at large, evidence must be secured of the most satisfactory means of utilizing the library resources of the region economically.

Meanwhile it is interesting to observe that the direction which the administration of this educational instrument should take is still under question. For many years institutional libraries followed the pattern set by the public library as a more or less independent and self-contained unit. More recently school and college libraries have proceeded on the theory that the library is not an entity in itself but an integral part of the school it serves. Because many school systems are unable to provide libraries of the caliber now considered essential, educators look to cooperation between all library agencies in a community. As has been seen, a few pioneers favor the administration of all libraries by the educational authority. The very proposal is indicative of the boldness with which current research is challenging long-accepted traditions and modes of library procedure.

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CHAPTER VIII

Visual Aids in Education

JAMES S. KINDER

IN SPITE OF THE FACT that this is the first systematic presentation of visual literature for the REVIEW, it is not possible to do more than sketch in briefest form the history of the development of this field. Emphasis is reserved for the more significant researches of the last three years. Visual education is one of the most rapidly developing aspects of teaching. The term is used to identify representational and experiential materials and technics, which in one way or another are used in every effective school to clarify and intensify the learner's mental images of the object, process, or event being studied. Visual aids have been used by classroom teachers for generations; some forms, however, are relatively new.

The present review is too restricted in scope to classify all the researches done in this field, because these aids include such media as blackboards; bulletin boards; cameras; cartoons; demonstrations; excursions or field trips; films (silent and sound); filmstrips; graphs, charts, and diagrams; illustrations; maps and globes; microslides and microphotographs; models, specimens, and representations; museum materials; opaque projection; slides; and stereographs. In the literature for this field, one finds the terms "audio-visual" and "visual-sensory" as often as the term "visual" alone. To avoid what appears to some educators as a confusion of terms, Hollinger (33) suggested that the designation "perceptual aids to learning" be substituted. Thomas (67) used the same terminology. Hollinger stressed the need for emphasis on the meaning, place, and importance of the "percept" in all learning.

Two decades ago research in visual education centered around the studies of Freeman and his colleagues, Weber, Sumstine, and others. At that time research in this field was rare. Today the literature is replete with discussion articles, surveys, and careful experimental researches. *The Educational Screen* is a journal "devoted exclusively to the visual area in education." *The Visual Review* published annually presents a general summary and survey of visual development. *Scholastic*, a national weekly designed chiefly for secondary schools, devotes one section to audio-visual news. Such magazines as *The Journal of Educational Sociology* and *Education* devote one or more issues each year exclusively to this area. Practically all the educational journals carry numerous articles from time to time on visual education. Many other articles appear in the journals of the various state education associations. Textbooks, pamphlets, conference proceedings, and news letters increase the volume of material.

Many school experiences are sterile and barren. Purely vicarious and verbalistic learning of facts is not consistent with modern theories of

education. Even after years of hard study the learner is somewhat like the contemporary of Emily Dickinson, of whom she wrote, "He has all the facts but not the phosphorescence of learning." The motion picture, particularly the sound motion picture, has brought a resurgence of interest in visual aids to a field that previously was rather drab and undifferentiated. The motion picture and the radio have proved to be exceptionally effective adjuncts to teaching. They give vivid and lasting impressions; detailed concepts; broad, interesting, and stimulating experiences; and variety. Half a score of years ago educators were asking, "Why visual aids?" Today the question is, "How can we use visual aids most effectively?"

Technics in Using Visual Aids

Visual education is not a subject nor is it a distinct method such as the project method, the socialized recitation, the unit plan, or the lecture-demonstration. It is a procedure which deals with visual materials. It is, therefore, supplementary to other methods much as the library and laboratory are supplementary. All these procedures, however, have their own technics for optimum results.

Lake (40) maintained that motion pictures should be previewed by the teacher before they are used in a learning unit; film ideas should be adjusted to the purpose of the lesson; there should be specific preparation of the class to receive the film; before and after the film showing there should be time allowed for related class activity; and there should be a definite "check-up" of the ideas which the pupils got from the film. Dickter (19), as a result of extended experience with visual aids at the junior high-school level, agreed with Lake, but added that teachers and pupils should use an evaluation form of some kind for purpose of future record. Dickter listed errors, or "don'ts," for the teacher as follows: (a) showing two or more unrelated films during the same period, (b) failing to have pupils know specifically the purpose of the film, (c) asking very general questions to start the discussion after a film showing, (d) showing the film at the wrong time, (e) failing to use the film a sufficient number of times, (f) reading extensively to the pupils from the teacher's manual which accompanies the film, (g) using films not sufficiently related to the unit under study, and (h) using a film when some other aid would have served better.

In a carefully controlled experiment with eight hundred eighth- and ninth-grade science students, Krasker (39) got at the heart of many troublesome problems of film usage. He found that size of class affects the learning even though films are used. (Small classes—exact size not stated—were better than large classes. Doubtless, much of this was due to the fact that better learning attitudes prevail in smaller classes.) Preparation for showing the film is essential. Classes should not be marched off to the auditorium for the film showing. The Michigan yearbook (48) stressed much the same points.

No instance of scientific research has come to the present reviewer's attention which has shown a loss in amount of learning by pupils when taught through the use of visual media. Stadtlander (66), Hansen (25), Kirkpatrick (38), Wise (76), Lamoreaux (41), Krasker (39), Bradley (10), Reitze (57), and others showed definitely that visual aids are a distinct asset to effective teaching. Also, researches show that this statement holds for all, or practically all, curriculum subjects. A few representative studies here are: in English—Ginsburg (23), Spilde (65), Holland and Netterville (32), Hart (27); in nature study and geography—Stadtlander (66), Peters (53), Repass (58), McLeese (45); in history and social studies—Wise (76), Eichel (21), Walters and Noel (71), Bradley (10); in reading—Winchell (74) emphasized the value of the flashmeter and other types of visual aids, and Berg (8) achieved excellent results with retarded readers with the use of the filmstrip; in science—McCowen (44), Maneval (46), Molyneaux (50), Bennett (7).

Other Uses of Visual Aids

Most of the foregoing studies dealt with factual learning of the classroom type. Ramseyer (54) investigated the effect of the documentary film on social attitudes. Using students from the sixth grade through college and noncollege adults, he showed changed attitudes produced by motion pictures. Social awareness can be materially stepped-up. Furthermore, the changes wrought prevail after a period of two months.

Appreciation—Educators and critics have been concerned over what appears to be a low caste motion picture appreciation. Efforts are now being made in the schools to cultivate a high type of appreciation and a body of critical-minded theater-goers. Dale's work (15) has been significant in this area. Scores of classroom teachers and principals, among them Williams (72), Allensworth (2), and Smith (63), have produced fine results. Motion picture and photoplay appreciation clubs and classes are numerous.

Picture production—Recently many schools have produced scenarios and motion pictures. In some cases this is merely activity of a spectacular type designed to impress the parents, taxpayers, or professional colleagues. In other cases, however, the making of films has a real purpose. It stimulates creative pupil activity and creates worthwhile learning situations. Hart and Wenger (29) stressed the fact that education which does not result in doing or acting is of little value. Health and safety rules must be translated into action. The Denver schools made a notable contribution to school-made films. Livermon (42) showed conclusively that much originality in acting, writing, designing, and directing is provided by school-produced films.

Public relations—Administrators see in visual aids not only valuable educational tools but also implements for the cultivation of better public

relations. Here is an effective way of "selling" the school, or ever increasing budgets, to the taxpayers. Martin (47) feels that the motion picture is a modern, dignified, and impressive way of letting the public know what the school is doing. Wagner (70) made a careful survey study of the school-made film for public relations in Ohio. Thirty-eight districts in Ohio had used such a procedure, filming such topics as a typical day in the school, football, safety, May Day, teacher selection, community aspects, and public service. He showed that the school-made film has more audience drawing power than other school-community meetings. Some schools reported that attendance at such meetings in their districts had doubled. Comments and reactions of the school patrons were highly complimentary, hence Wagner concluded that school-made films "should be a part of every balanced and continuous public relations program."

Equipment

Numerous short articles dealing with equipment or surveying the equipment now found in schools have appeared from time to time. One significant reference has appeared over the last three years. The Society of Motion Picture Engineers in 1941 published a report of its Committee on Non-Theatrical Equipment (64), which is a most reliable and usable study. The Society gave pertinent suggestions concerning technical specifications, defining performance of 16-mm. projectors, and the typical characteristics of various types of screens.

School Journey

School journeys, excursions, or field trips are old technics in the teacher's repertoire. In the last decade they seem to have taken on new meaning. The Pennsylvania State Department of Public Instruction contributed materially to their development through the publication of two pamphlets (51, 52). A bulletin of the elementary principals of Los Angeles (43) provided further emphasis. The trips of Lincoln School, Teachers College, Columbia University, have been given much publicity. One of these trips (to the coal fields of West Virginia) was described by Baker (5) and an evaluation and appraisal made by Raths (55). About a year later, thirteen high-school students of Morgantown, West Virginia, made a ten-day trip to New York. Jones (36) provided an excellent evaluation of this field-study experience, showing changes in thought-pattern of the individual students. One high-school principal (59) apparently takes his high-school students on a ten- to twelve-day junket each year covering some three thousand miles or so. This principal is also looking forward to a not too far distant day when his school will offer credit toward graduation for field trips. Selke (61) has not only emphasized the values of trips but has given concern to the standards for judging field trips. The most pretentious and reliable study yet reported in this area was made by Atyeo (4).

Other Visual Media

Although the motion picture is the predominant aid in the visual field, each of the other aids has a specific part to play. No one tool will serve all the educational purposes served by visual education as a whole. Each aid has a more or less specific function. Slides and motion pictures are exceedingly valuable in teaching geography, but Waddle (69) also found the stereograph to be a useful tool in geography teaching.

Science teachers have achieved excellent results with the microscopic projection and microphotographic slide. For purposes of projecting live specimens and bringing interest and reality to the class, these media can scarcely be equalled (73). Breechbill (11), using controlled groups in an elaborate experiment at the University of Maryland, found that experimental groups of science students taught by use of microprojectors showed more uniform learning than control groups with an individual microscope for each pupil. Other results were: in general the pupils seem to prefer the microprojector method; beginning students appear to profit more than advanced students. The results of such an experiment should mean considerable savings in dollars and cents for science equipment. Hall (24) investigated the preferences of 345 high-school students in science for three basic types of illustrations—diagrams, cartoons, and photographs. He concluded that (a) age makes considerable difference in the preferences, (b) high-school seniors prefer diagrams, (c) ninth- and tenth-graders prefer cartoons, and (d) photographs are low in the preference of all groups. Somewhat along this same line, researches in recent years have shown that maps, graphs, and charts as well as pictures need to be taught.

Carthew (13) emphasized teaching such timely maps as are found in newspapers, magazines, almanacs, and the automobile road map. Cobb (14) showed how these are to be used. Wise (75), using controlled technics, showed that, with sixth-graders at least, special training in map reading and study gave greater improvement than incidental methods, and Wrightstone (77) found a gradual growth in map and graph reading ability from the seventh through the twelfth grades.

Abramson (1), Berg (8), and Earley (20) reminded us that the opaque projector, the filmstrip, and the museum still have their contributions to make. Miller (49) has substantiated the findings of earlier investigators in the matter of what children see or do not see in a picture. Children seem to miss many items in nearly every picture, and frequently the items are seen in isolation rather than as parts of a unified whole.

One of the intriguing facts that has grown out of visual education studies is that most visual aids can be used over a much wider scope of grade placements than verbal materials. Using a sound motion picture, Sherman (62) showed that even first-grade children, some of whom had not previously seen a squirrel, learned the concepts of gnawing, balancing, running, climbing, and sniffing the air better than through any other medium.

Rummel (60), using 2,100 children, Grades III through XII, concluded that films have a larger grade area than has been supposed. Stadtlander (66) came to the same conclusion.

Next Steps

The foregoing review is representative of the research and literature in visual education. The field has grown rapidly in recent years. Kinder (37) found that research is being carried on in nearly all the leading institutions of higher learning in some aspect of visual education. Many of these researches are being done in connection with the master's degree, but more and more doctoral work is in evidence. Research divides nearly evenly into administrative and technic problems. Certainly the need for research into unit studies and grade level adaptations has not progressed far. Likewise, such areas as artistic and esthetic judgments, attitudes, and learning processes await much fuller treatment and development. Bean (6) believes that we are on the verge of new and important developments. Hansen (26) and Reed (56) have outlined a fruitful field for investigation. It should also be pointed out that there are many studies, perhaps some of them of restricted range, which need to be done by the teachers in the classroom. These studies, though small in themselves, build the backlog of knowledge for the use of visual aids. This is as necessary as the larger foundation studies.

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CHAPTER IX

Educational Psychology

WILLIAM CLARK TROW

DURING THE PAST THREE YEARS investigations in the field of educational psychology were reported under various headings in issues of the REVIEW and elsewhere: teacher personnel, pupil personnel, mental hygiene, exceptional children (35)—perhaps the most significant work in this area being the delineation of endogenous and exogenous feeble-mindedness by Strauss and Werner (84)—growth and development (61), and intelligence (62). During this period the IQ controversy (94) ran rampant with a flutter of varicolored banderillas in its neck defying anyone to administer the *coup de grâce* until the public realized it was witnessing not a struggle in the arena but a tempest in a teacup. Surveys in the REVIEW have likewise appeared, or will appear shortly, on appraisal and on the psychological aspects of the school subjects, where the most prolific work has been in reading (96), though the increase was noteworthy in psychological investigations in the esthetic aspects of learning, particularly in music (79) and in design (100). In this chapter some of the more significant studies in educational psychology are reported following those of the June 1939 issue of the REVIEW, but excluding the areas indicated above. Hence the material treated will relate to the whole school situation rather than to specific school subjects or activities.

The Thought Processes

Conditioning, which came as an answer to the behaviorists' subvocal tensions, has been shown by Hilgard and Marquis (36) and others to be a more complex process than the classical Russian experimentation originally implied. Responses conditioned by different perceptual configurations suggest Gestalt organization (71) and raise the question of equivalence of stimulus patterns (72) that is discussed at length by Hull (39).

Studies of transfer during the preceding six years were reported by Orata (64) who discounts "identity" and favors the more familiar explanatory phrases, "generalization" and the "reconstruction of experience." A so-called generalization method in arithmetic (90), which "emphasized the discovery and use of relationships existing among addition combinations," proved more effective than a drill method in which each combination was "a specific element with no relation to any of the other number facts." The various interpretations that can be given to generalization make it a convenient explanatory principle; but its scientific value, since its famous though elusive launching on the waters of the dart-throwing experiment, is now called into question. An effort to repeat the experi-

ment (33) eventuated in results somewhat less favorable to generalized experience, as such, than those credited to the original reports. Katona (47) emphasized the importance of understanding as contrasted with uncomprehending drill, memorizing, and training, and Brownell (17) showed that the use of a visual "crutch" in subtraction not only did not prove to be a handicap but facilitated the learning of both bright and slow pupils.

The concept of set is apparently due for a revival since Dashiel called attention to it as a neglected fourth dimension in psychology. Though it is variously defined and often ambiguously used (29), it turns up in configural conditioning experiments (70), and in investigations of the law of effect, in one of which (99) the effect did not operate when the "learning motive" was not present, in an experiment that was disguised as one in extra-sensory perception.

In one learning study (48) the value of supervision was tested when teacher effectiveness was equated on the basis of pupil performance and reliable differences were found in subsequent pupil improvement in favor of a supervised over an unsupervised group. In another (73), the dangers of standardized testing were pointed out when high-school pupils, after a six weeks' introduction to chemistry and twenty days of intensive drill on factual material, scored better on the cooperative test than pupils who had spent a year on the subject. A series of studies by Rubin-Rabson (75), in the psychology of memorizing piano music, found little difference in the effectiveness of different methods except for the apparent value of prestudy periods. Stroud (85) reviewed the literature on learning in school situations emphasizing those studies which test out the results of laboratory investigations. The theoretical contribution of the year was Hull's "mathematico-deductive study of rote learning" (40).

Razran (69) concluded that verbal conditioning is primarily semantic, that is, that verbal stimuli can be equivalent because of their meaning-content factor. Maier (59) postulated three psychological processes to account for the various ways in which problems are solved: variability, for trial-and-error; equivalence reactions including transfer of training, for that form of concept formation in which some limited aspect of a situation comes to evoke the response; and spontaneous integration or "reasoning," which differs basically from the other two. Herrick (34) concluded that inductive problem-solving is good when it is characterized by the abandonment of wrong hypotheses before they have received a fully logical disproof and by a variety of hypotheses. Persistence in following out one hypothesis bears an inverse relation to the number of alternative possibilities (74).

Influence of the Social Environment

While hereditary influences have a determining influence as shown by studies of identical twins reared apart and of foster children (101), the structure of the social environment is recognized as of tremendous

significance in the modification of human personality. Chaotic as is the field of social psychology (46), educational psychology can definitely profit from a better understanding of its data and technics. The most original work, many would agree, is that being done by Lewin (52) who has been employing topology as a geometry to represent behavior as a totality of co-existing facts having the character of a dynamic field. Following the field theory, Lippitt (55), using two children's clubs in which the effects of autocratic and democratic leadership methods were differentiated, was able to clarify many socio-psychological phenomena familiar in the school society. That experimentally-minded teachers may not confuse autocracy with petulant domination and democracy with inefficient *laissez faire*, Pistor (67) has designed a rating blank listing 120 classroom practices that can be used to aid in preparing pupils to participate in a democratic society.

The methods, results, and problems of social research, not only as they affect the school but the wider society as well, have been summarized under the authorship of several leading workers in the field (10). The time sampling technic was effectively employed by Arrington (7), particularly for the study of continuities in children's verbal behavior.

The wider social environment has begun to attract the attention of educational psychologists. E. L. Thorndike's compendious volume (92) and other studies (83, 91, 93) emphasize the continuity of the adjustment process in which the school participates. How important the human social order is in determining the course of development was suggested by way of contrast in the reports on feral children (104) in which it is absent. The objectives sought and means chosen for obtaining the desired ends differ in different cultures. The duty of education in Fascist Germany (38) is to foster adolescent ecstasy; to be Hitler's soldier raises youth to supraindividual exaltation and action and suprahuman, intoxicating conquests. A report (97) of a comparison of the work of the Bremen Institute for Youth Study for 1926-28 and 1939-40 reveals that as a result of the application of principles received from the Führer, the later fourteen-year-old group is better physically, their characters are firmer, they need stricter discipline, but their scholastic showing is not so good.

On the basis of several studies, Furfey (28) pointed out that undesirable culture traits are not changed by attention to the individual alone, but to the area, class, or group. Koshuk (50) reviewed 525 studies, made since 1925, of socio-cultural influences affecting the behavior of young children, indicating research trends; and J. E. Anderson (5) classified the results of typical studies and enumerated the chief factors conditioning social behavior, for example, selective social learning, social experience provided by the environment, equipment, and out-of-school social participation. The teacher's record of socialization within the community as described by Greenhow (31) is not an enviable one.

The school population is definitely influenced by the wider society and also by the home environment (57); and more effective procedures can be employed (30) in modifying the personality characteristics of children by means of a home-training program. But it is within the school society that the widest opportunities are found for improving the social learning program of the younger generation. The world did not have to wait for Miller and Dollard's ingenious experiments with rats (60) to learn that children imitate. Apparently those teachers who have a high degree of person-to-person interaction with pupils are effective as models and are rated high as instructors (16). Positive directions, defined as simple, specific, approving, and unhurried, were shown by Johnson (45) to be superior to those of the negative type for young children. The results of studies of the influence of the nursery school as such, however, are equivocal (42, 98) since so many other influential factors are operating. More specific studies of group interaction can well be made, such for example as that by H. H. Anderson (3) of dominative and integrative behavior.

Evaluation—A distinctive feature of recent developments in educational psychology is the evolution of measurement into evaluation programs. After surveying 129 titles, Orata (63) concluded that evaluation still has a long way to go before it can fully justify its being associated with newer school practices. Yet it is these newer practices that are largely responsible for calling it into being. A two-year study (43, 102) of the so-called activity program in a group of elementary schools in New York City resulted in the conclusion that the activity classes are generally equal or superior to the traditional in intellectual, dynamic, and social performance factors, though there is evidence that they lag behind in certain school subjects, mainly arithmetic and spelling. A survey of the research findings (68) of the last twenty-five years of progressive education reports no loss in academic proficiency and gain in terms of personal and social development. The same favorable results were reported from a restricted study (51) of college performance of a group of students following a freer program of studies in high school when compared with an equated group taking the traditional required subjects. Equally favorable, but far more detailed, are the results of the Eight-Year Study sponsored by the Progressive Education Association (1).

Morale—Resulting from the present emergency, a number of articles are being published relating to the problem of morale. The *American Journal of Sociology* devoted its November 1941 number to this subject, and the *Psychological Bulletin* its June 1941 number. Few of the studies reported, however, have a direct bearing on educational problems. British psychologists (18, 21, 44), who have studied the effects of evacuation of school children to avoid air raids, found that though the problem is complicated by many factors, the disturbance is often not much less for those children who have been evacuated than for those who remained behind. Educators will need to contend with problems of adult morale as well, for

which a penetrating analysis by Allport and others (2) based on a study of ninety life histories of the Nazi revolution should prove enlightening.

Personality

Studies of various aspects of personality are many and often related to educational problems. Schettler (78) listed topical summaries of 308 items on personality traits. The recurring problem of what the personality tests measure was discussed by Bernreuter (12), who recommended that reference be made to Buros's *Mental Measurements Yearbook*, while Super (87) reviewed the research on the Bernreuter *Personality Inventory*. Brogden (15) ran a factor analysis of forty character tests and discovered Spearman's G and W, honesty, persistence, self-control, and acceptance of the moral code. With a revision of the A-S reaction study for women (76), favorable results were reported: negligible correlations with intelligence, around .35 between submission and introversion, and .44 between ascendance and persistence. Projective methods (27, 88) are gaining headway with the gradual secularization of psychoanalytic approaches and the promotion of the Rorschach technic (49). Pearson (66) called attention to a neglected aspect of experience, that of the effect of operative procedures on the emotional life of the child.

Investigations employing the Allport Vernon *Study of Values* and other instruments of evaluative attitude were reported by Duffy (25). Researches on what they refer to as emotionalized attitudes were reviewed by Briggs and others (13) who made their selection on the basis of what they considered would be of most interest and value to teachers. A novel attempt by the use of a modified Likert technic was made by Dexter (22) to measure changes in attitude produced by speakers; and rather striking differences in maturity of attitudes and interests of pre- and post-menarcheal girls of the same chronological age and social status were found by Stone and Barker (82). Probably the most intensive and far-reaching study of interests is being made by Sheviakov (81) and his collaborators; the use of interest questionnaires as a disguised form of personality inventory has possibilities of great significance. Evidence was cited by Super (86) to support the view that avocations are manifestations of dominant interests that do not find expression in vocations. When the regular vocation provides the needed satisfactions, there is no competition with the avocation for an individual's interests and energies.

Behavior Variables of Educational Significance

A number of phenomena of human personality have been investigated. One that has received considerable attention derives from Dembo's concept of the level of aspiration, studies of which have been made by Frank (26). It has been shown (20) that a knowledge of performance of other groups influences the level before firsthand experience with the

task but not afterwards. Also, subjects (37) tended to estimate their expected performance too low if the task was easy and too high if it was difficult. This tendency to estimate toward the mean of the group is difficult to explain since the estimates were given privately. Still more difficult is the problem of what to do with the pupils who aspire unsuccessfully to the social norm (80).

Frustration phenomena have likewise begun to attract experimental notice, especially since the Yale psychologists (23) linked them with aggression by a dogmatism they have since relaxed somewhat, perhaps in part because of the excellent analysis by Britt and Janus (14). Anthropological data, puzzles, removal of the bottle, puzzle boxes, memory span apparatus, and many other means have been employed to obtain observable frustration behavior, chiefly in children. While the phenomena stop short of the experimentally induced neuroses in rats and other subhuman species, they nevertheless strongly resemble problem behavior in school, a fact that is not without significance for teaching. The most ingenious and detailed experimental studies are those of Lewin and his associates, especially the frustration-aggression series produced under autocratic social climates (53), and the regression in constructiveness produced in a children's play situation (8).

A number of behavior variables deserve more study than they have yet received. Superstitiousness, for example, in child or adult is as valid an indictment of the school program as illiteracy. Ter Keurst (89) and others have found many hangovers of animism and supernaturalism, to say nothing of tenacious beliefs in obsolete tenets of antique science. In the sensory-motor sphere, clumsiness has been tentatively analyzed by Pear (65), and in the area of social relationships, gratitude by Baumgarten-Tramer (11).

In the generally neglected field of the sentiments Barry (9) found a high incidence of maternal bereavements during childhood in the case histories of over five hundred young psychotics. This problem is scarcely recognized by the schools, while nostalgia, though a problem chiefly to boarding schools, has a fairly extensive literature (58). Jealousy and envy, which often present the most difficult problems not only among pupils but also among teachers, were studied by Ankles (6) by means of an interview technic.

The nature of status is coming to acquire greater significance as a practical and theoretical problem. Writing from the sociometric angle Zeleny (103) defined it as the average intensity of the attitudes expressed toward a person by his associates, and cited evidence to show that it can be measured and controlled. Lippitt (56) approached the question by studying popularity, using the method of paired comparisons and observing social interactions, and found that children's and teachers' estimates were based on different criteria, the teachers', for example, being related to social participation. What Dudycha (24) called "dependability," which

consisted in promptness of college students in meeting appointments, coming to an eight-o'clock class, handing in assignments, and returning books to the library, was found to have no relationship to Bernreuter traits or, except for library dependability, to college grades.

Persistence (77), Thornton (95) found to correlate lower than the usual (.45) with scholastic achievement and he contended that the higher figure is spurious. Burton (19) demonstrated with preschool children a reinforcement of persistence after satiation in a pegboard task through social stimulation. These factors and many others are related to leadership, though different qualities are necessary for leadership in different situations. Hunter and Jordan (41) compared eighty-two college leaders with a control group and found them to be lighter in weight, younger, and higher in intelligence, scholarship, and interest maturity, and so forth. It is doubtful, however, if these differences, though statistically reliable, are as significant as others that their technic did not reveal.

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Index to This Issue

Vol. XII, No. 3, June 1942

References are to the beginning pages of discussion, which may be intermittent.

Activity education, 263, 264, 276, 280; bibliography, 281; evaluation, 282
Analysis of social needs, 262, 274
Attention, 300
Attitudes, factors affecting, 312; measurement, 349; motion pictures and, 338
Authority, vs. freedom, 280

Causation, 296
Colleges and universities, relations with high schools, 265
Community and school, 265
Comparability of data, 329
Contemporary studies, 267
Cultural factors, 347
Current events, 305
Curriculum, organization, 274; philosophy, 259
Curriculum-making, 259; various approaches, 259

Democracy, 263, 291, 295; teaching, 261, 347
Discipline, 282
Drama, 305

Educational philosophy, 259, 289
Educational psychology (as a field), 280, 345
Eight-Year Study, 265, 275, 283
Emotions, 350
Enrichment, 278
Environment, and the pupil, 346
Evaluation, 348

Field trips, 339; evaluation, 339
Freedom, of will, 297
Frustration, 350

General education, 274
Generalization, 345
German education, 347
Grade placement, 340

Individualized instruction, 302
Intangible outcomes, appraisal, 284
Interests, 295, 312; measurement, 349

Leadership, 351
Learning, studies of, 346

Lecture method, 300
Libraries, 323; adult education and, 329; bibliography, 323; college, 323, 328; cooperative programs, 325; costs, 326; evaluation, 324, 326; function, 323; high school, 323; instruction about use, 329; needed research, 330; school, 323; surveys, 324; use of, 327

Maps, reading of, 340
Methods of teaching, 299
Microphotography, 340
Morale, 348
Motion pictures, appreciation, 338; equipment, 339; in education, 337; production, 338

Needed research, libraries, 330
New York City Activity Experiment, 277, 282

Objectives, 292

Persistence, 351
Personality, 349
Personality measurement, 349
Philosophy, 290; value, 293
Phonograph, in schools, 314; transcriptions, 314
Pictures, 340
Progressive education, 262
Project method, 300
Public relations, 338

Radio, 305; bibliography, 305; comprehension, 313; education, 311; equipment, 307; evaluation, 309, 315; production of programs, 305, 314; programs, 308; research, 306; training, 315
Reading, interests, 328; sex differences, 327; sociology of, 328
Research technics, social development, 284
Retarded children, curriculum, 278

Science, philosophy and, 291, 295; teaching, 301; visual aids, 338, 340
Size of classes, effect on learning, 337
Social background of education, 292, 347

Social research, 347
Social studies, curriculum, 274
Superstitions, 350

Thinking, 345
Transfer, of training, 345
Twins, 346

Unit plan of teaching, 302

Visual aids in education, 336; equipment, 339